September, 1952

WOOD and wood products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE
OF THE $9 BILLION FOREST PRODUCTS INDUSTRY

Hillman Lueddemann

See Page 21—WOOD SALUTES

Material Handling

Cranes, belts and lift trucks move materials efficiently at Poinsett Lumber Co. Page 23.

Marketing

On page 28 read how wood dies open new market for woodworkers.

Production

To see how better product design increases output turn to page 27.

Management

Quality control helps keep customers happy at Morgan Mfg. Co. To see how it works turn to page 24.

Other Items to See

- Faster Assembly
- Hard Surface Plywood
- Modern Dry Kiln
- Assembly Line
- News and Trends
- Out in the Shop
- Markets
- New Products
- New Literature

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WOOD and wood products

Volume 57, No. 9

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(advertisement)

Mauk Talk

When they put a time limit on the speeches at the Chicago conventions, women politicians considered forming that third party.

* * *

The man boarded the Pullman, parted the curtains and beheld two beautiful blondes in his berth. "I'm sorry, ladies. I'm a married man—a man of respect and standing in my community. I cannot have a breath of scandal touch me. I'm sorry, but one of you girls will have to leave."

* * *

"Did you make the debating team?"

"N-n-no. They s-s-said I w-w-wasn't t-t-tall enough."

* * *

The tag on her dress said 'virgin wool' so Simple Celia figured it must have come from the sheep who ran the fastest.

* * *

The extensive facilities of the MAUK Lumber Co. make it possible to meet all orders promptly and precisely. We ask only to know your requirements. We are prepared to meet them.

We have access to the materials, the mills and the equipment necessary to furnish what's right for you—at the time, at the place, at the price that you want it. Remember MAUK Lumber Co.

* * *

They laughed when he stood up to sing. He didn't know he was under the table.

* * *

She couldn't decide whether to buy the couch or the chair.

"You can't make a mistake in that chair," said the salesman, so she bought the couch.

* * *

"Who was that guy you were kissing at the dance last night?"

"What time was it?"

* * *

MAUK Seattle Lumber Co.
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"Paid for themselves Many Times Over"

This is what Mr. Morrison, General Manager at Sunset Moulding Company has to say about his Mattison Moulder. Because he brings out a number of other important parts we are including his entire statement:

"It has been the good fortune of this company that we switched to Mattison Moulders some three years ago.

Since this time we have experienced nothing but good results from the two Mattison Moulders which we now have in our plant. The machines have paid for themselves many times over in production alone, over our old equipment.

The set-up man who is working for us, and has had many years experience on almost all the better types of moulders manufactured today; states that they are the quickest machine to set and the most handy machine to work around that he has ever run."

Mr. Morrison says further:

"The workmanship produced by these machines is tops and the precision job of engineering that goes into these machines cannot be excelled by any manufacturer, in our estimation.

The above facts combined with the splendid cooperation we have received from your company makes the most satisfactory purchase of woodworking equipment that this company has ever experienced."

It is possible that the Mattison Moulder can do the same for you. If you would like further information regarding the Mattison line of Moulders let us know and we'll gladly send it to you.

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SEPTEMBER 1952

WOOD and wood products

VOL. 57, NO. 9

Industry News and Trends

Ceiling Price Changes

Pacific Northwest Logs: A number of minor changes in Ceiling Price Regulation 97, which establishes ceilings on Pacific Northwest Logs, was announced by the OPS. The changes were prescribed in Amendment 8 to CPR 97, effective July 26, 1952. One of the changes being ceiling prices for cottonwood logs, are established at levels previously prescribed for alder logs.

Red Cedar, Poles and Piling: Dollars-and-cents ceilings for producers' sales of untreated poles, piling and anchor logs cut from Western Red Cedar, Western Larch and Inland Douglas Fir were announced by the Office of Price Stabilization.

The ceilings are prescribed in Ceiling Price Regulation 155, effective July 15, 1952. It supersedes the General Ceiling Price Regulation (GCPR) with respect to the products covered. The regulation also provides a method of determining ceilings for sales by treaters of such products when preservatively treated to render them resistant to decay and insects.

Eastern Wood Preserving: New ceiling prices for the eastern wood preserving industry were announced by the Office of Price Stabilization. The new ceilings are prescribed in Ceiling Price Regulation 157, effective July 16, 1952. It permits treaters to reflect in their ceilings the increased cost to them, including freight, of untreated forest products. The new ceilings apply to treated poles, piling, posts, bridge and mine timbers, railroad ties, lumber and other forest products, and to the treating services involved.

Redwood Lumber: Ceiling prices for manufacturers' sales of California redwood lumber produced in California and Oregon were announced by the Office of Price Stabilization. The new ceilings are spelled out in Ceiling Price Regulation 158, effective July 23, 1952. They apply to manufacturers' sales in the United States.

Pulpwood

Southern Pulpwood Production on Increase: The South's pulpwood production continued its record-breaking advance by hitting a new high of 14 million cords in 1951, as revealed in a report by the Southeastern Forest Experiment Station, Asheville, N. C. The increase amounted to 1½ million cords, or 13 percent over the total production in 1950.

Receipts of domestic pulpwood at all mills in the United States amounted to 25 million cords last year. Thus the South produced 56 percent of all the pulpwood cut in the Nation. The table (lower left) shows the pulpwood production of the Southern States for 1951.

State	Pine	1951 Southern Production Pulpwood Hardwood	Chestnut	Total	Change 1950 to 1951
			Standard	Cords	Percent
Florida	1,489,201	1,124		1,490,325	+ 7.6
Georgia	2,278,843	78,550	12,750	2,370,143	+ 6.7
South Carolina	1,105,205	145,840		1,251,045	+ 5.8
North Carolina	1,053,593	179,651	71,296	1,304,540	+27.4
Virginia	989,205	312,069	25,059	1,326,333	+27.0
Southeast	6,916,047	717,234	109,105	7,742,386	+12.9
Alabama	1,392,180	14,027		1,406,207	+ 6.4
Arkansas	521,773	92,019		613,792	+ 1.7
Louisiana	997,193	113,768		1,110,961	+25.8
Mississippi	1,412,167	381,209		1,793,376	+ 7.7
Oklahoma	44,618			44,618	+14.9
Tennessee	60,464	72,334	58,617	191,415	+33.0
Texas	1,097,806	60,565		1,158,371	+25.6
Lower South	5,526,201	733,922	58,617	6,318,740	+13.3
Total South	12,442,248	1,451,156	167,722	14,061,126	+13.1
Percent	88.5	10.3	1.2	100.0	

Lumber

Shipments Below Production: Lumber shipments of 492 mills reporting to the National Lumber Manufacturers Association were 7.7 percent below production for the week ending July 26, 1952. In the same week new orders of these mills were 1.5 percent below production. Unfilled orders of the reporting mills amounted to 44 percent of stocks. For the reporting softwood mills, unfilled orders were equivalent to 25 days' production at the current rate, and gross stocks were equivalent to 52 days' production.

For the year-to-date, shipments of reporting identical mills were 5.1 percent above production; orders were 5.3 percent above production. Compared to the corresponding week in 1951, production of reporting mills was 1.9 percent above; shipments were 4.1 percent above; and new orders were 15.0 percent above.

Western Pine: Orders for Western Pine as shown on a report of the 114 mills to the Western Pine Association for the week of July 26, 1952 totaled 80,989,000 feet, compared with 69,121,000 feet for the previous week and 71,755,000 feet for the corresponding week a year ago. Similar comparison of shipments were 77,464,000 feet, 69,030,000 feet and 81,624,000 feet. Production figures were 84,122,000 feet, 76,449,00 feet and 79,039,000 feet. Orders showed an increase of 17.2 percent over those of the previous week.

Southern Pine: Shipments of Southern Pine by the 118 mills reporting to the Southern Pine Association for the week ending July 19, 1952 amounted to 18,747,000, feet, which was .4 percent above production. Orders for the week totaled 18,830,-

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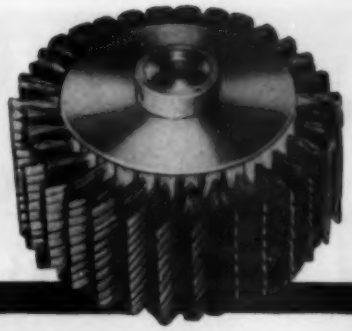

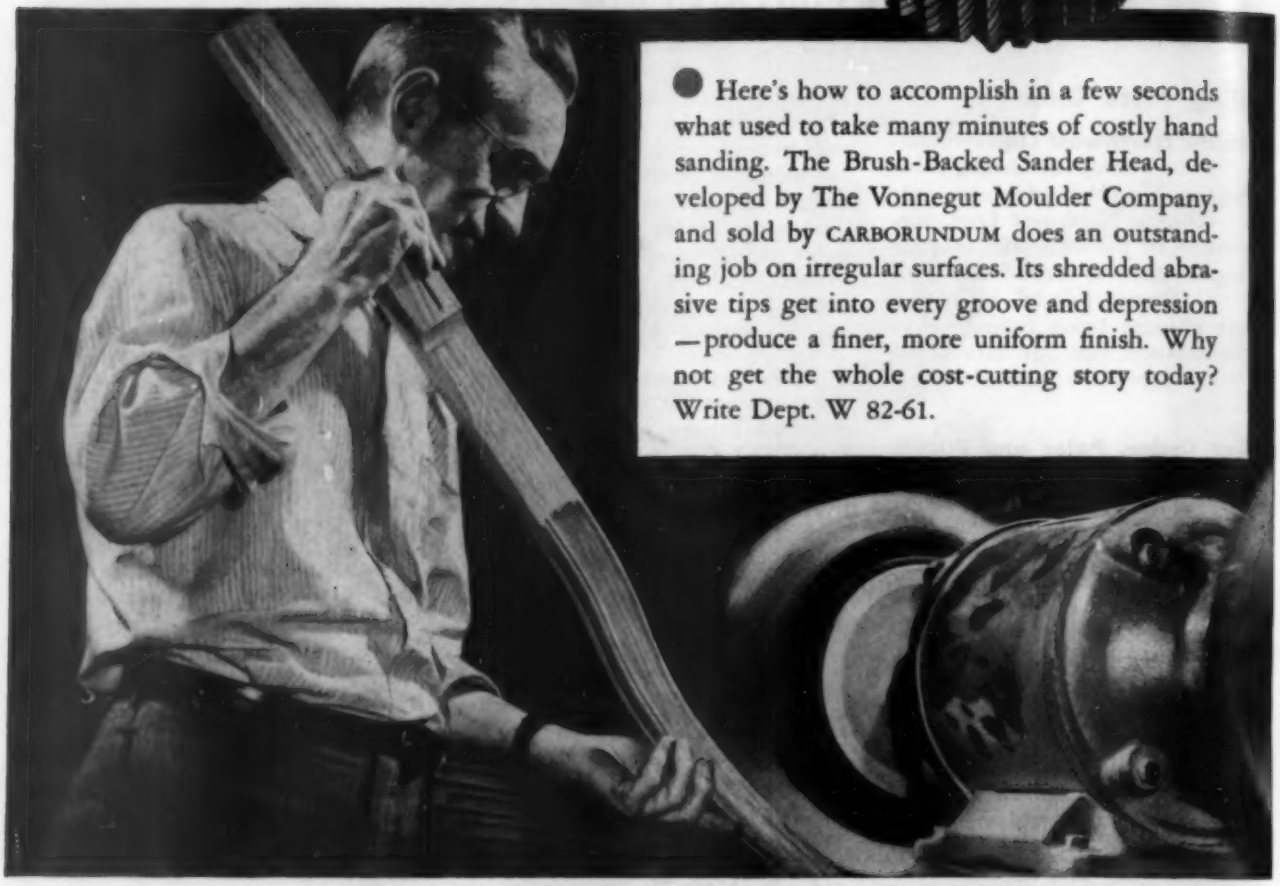

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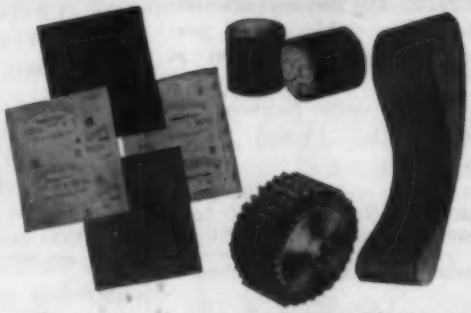

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000 feet, or 4.4 percent below the three year average. Unfilled orders totaled 49,752,000 feet, a .17 percent increase over the previous week.

Douglas Fir: Shipments topped five billion board feet from Douglas Fir sawmills during the first six months of 1952, according to the West Coast Lumbermen's Association. Production for the first half of the year was 5,095,371,000 board feet. Shipments totaled 5,092,065,000 board feet, and orders kept close pace at 5,016,401,000 board feet.

Housing Trends 1940-1950

The results of a nation-wide housing survey in the summer and fall of 1950 conducted by the Forest Products Laboratory in cooperation with the Housing and Home Finance Agency to determine the trends in construction methods and materials show some trends that should vitally affect our forest products industry. Material and construction changes from 1940 to 1950 are as follows:

	1940 Percent	1950 Percent
Wood Houses	75%	75%
One Story Houses	67	86
No Basement	31	61
Four Room Houses	22	47
(Sq. Ft. Area has dropped from 1177 to 983 sq. ft.)		
Wood Framing	89	89
Siding	..	50
Wood Floors	99	81
Wood Kitchen Cabinets	92	76
Wood Shingles	33	10
Wood Window Frames	91	69
(In the first quarter of 1951 42% of all window frames were of metal.)		
Interior Finish		
Plaster	90	50
Dry-Wall	10	50

Housing design trends—more closet space—the dining room is vanishing—kitchen bigger—partitions between bedrooms have become storage walls—use of wood roof trusses—beam and plank roof construction—prefabricated stairs and fully assembled window units—elimination of sheathing in southern and western areas.

These trends should enjoy the careful study of everyone in the Forest Products Industry. They point out the need for:

1. Immediate logical and intelligent research to develop better and more

(Continued to page 13)

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(Continued from page 9)

economical wood products for the house construction field.

2. Better marketing, merchandising and educational work on wood products for the layman, (53% now own their own homes), architects and builders.

Timber

Timber as Security for Bank Credit: Recent moves by bankers to consider well-managed timber as security for bank credit may add impetus to the American Tree Farm System, according to American Forest Products Industries of Washington, D. C.

At meeting of the Oregon Bankers Association, a committee was authorized to explore possibilities of modifying the Federal Reserve Act, under which timber stands are classified as unimproved real estate and therefore ineligible for loans.

The committee was instructed to work jointly with similar groups set up by banker associations in Washington, Idaho, and California, and with any group active in obtaining facts and "formulating a program dealing with reclassification of well-managed forest lands."

One of the groups active in this is the Western Forestry and Conservation Assn., whose forest counsel, Stuart Moir of Portland, spoke to the bankers on Tree Farm growth and progress made in the past decade in forest management techniques.

Leaders in the movement said they hope to have a general session later in the year, with bankers associations of several western states represented, along with Western Forestry and other groups. Methods of procedure are to be outlined then.

Furniture

Slight Increase in Furniture Production: There has been something of a revival in furniture activity in the past two months, according to a report by Seidman and Seidman, certified public accountants. The pickup has not gone far enough to establish whether it is merely a seasonal rebound or a definite trend.

Substantially more furniture was sold during the summer market at the exhibits than was the case a year ago, with the result that June 1952 bookings were 40% higher than those of June 1951 and 53% better than the May 1952 orders. However, orders for the first six months of 1952 still trailed the first six months of 1951 record-breaking volume by about 4%.

Shipments were off 12% in June compared with May shipments, and 6% compared with those made in June 1951. For the six months ended June 30, shipments were 12% short of the 1951 volume to that date.

Unfilled orders, by reason of increased bookings and lighter shipments, increased 22% during June and represented approximately five weeks' shipments at current levels. Compared with unfilled orders on hand at June 30, 1951, the backlog this year was down 16%.

Forestry

Sharp Increase in Alabama Tree Crops: After more than a century of use Alabama's commercial forests are producing new crops of trees at a rate that is almost one-third faster than the National Average, according to the American

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Forest Products Industries, Inc., Washington, D. C. While Alabama has only four percent of the country's commercial forest area, the state's forests account for 5.7 percent of the Nation's annual sawtimber growth. At the same time Alabama stands fourth in the Nation in lumber production with 5.9 percent of the country's annual cut.

Tree Farm Total Passes 26 Million: The addition of 32 new tree farms in Alabama and 9 in Louisiana boosted national acreage figures over the 26 million mark for the first time in the 11 year history of the American Tree Farm System. National figures as released by James C. McClellan, chief forester for American Forest Products Industries, show 3,745 individual tree farm units with a total acreage of 26,049,894 in 34 states.

Miscellaneous

Trailer Production Increases: The trend to trailer living and traveling is notably on the increase. One authoritative source places the figure in excess of 1,700,000 persons as now living in more than 500,000 trailers. Of this total, the American Magazine says that 45 percent use them as emergency housing, and don't move with them; 35 percent are people who are in mobile occupations; 15 percent are retired; 4 percent are people who prefer a life on wheels; 1 percent are vacationists who use trailers solely for recreation.

It is estimated that about 65,000 new trailers will be built this year if materials are available. Annual sales of trailers have risen from $1,300,000 in 1930 to approximately $235,000,000 in 1951, wtih more than 150 manufacturers producing them.

Call for Industry Expansion: The Defense Production Administration July 29 called for a $50 million expansion in the lumber and wood products industries, to be completed before 1955. The target is intended to provide production capable of meeting military and civilian needs during partial or full mobilization.

The goal, of which $20 million is earmarked for sawmills and related facilities, is DPA's guide in approving federal tax benefits, loans, and other incentives to firms undertaking expansion.

A two million dollar expansion of dry kiln capacity is called for, along with three million dollars for laminating facilities, and one million dollars for lumber storing and handling facilities.

The rest of the expansion is reserved for projects promoting lumber conservation—six million dollars for hardboard plants, five million dollars for debarkers and chippers, nine million dollars for fiber, chip and miscellaneous waste product plants, one and one-half million dollars for wood preservation facilities, and two and one-half million dollars for other wood products facilities.

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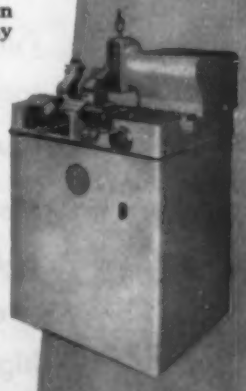

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"Forward thinking . . . . . ."

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Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industry.

William Nelson

If any one person could be termed the Supreme Court of the intricate and involved hardwood grading rules, it would undoubtedly be William H. Nelson, Chief Inspector of the National Hardwood Lumber Association.

Entering the hardwood lumber industry at an early age in Kentucky, he quickly rose to position of yard foreman and inspector and later joined a firm in Cincinnati in that position, joining the N.H.L.A. staff as Deputy Inspector in 1918. He served in that capacity until his appointment as Chief Inspector in 1923.

His responsibilities have required much travel in all parts of the United States and Canada, so that his intimate knowledge of firms, individuals, occurrences and places is second only to his prodigious memory and judgment in the application of hardwood grading rules.

From 1927 to 1929 he conducted experimental test inspections in numerous areas in order to secure basic material for proposed major changes in the Inspection Rules. Many of the present rules reflect his own thorough investigation of ever changing conditions.

During World War II, Nelson served on a variety of lumber committees in Washington, D. C.

J. R. Bemis

A lifetime lumberman, J. R. Bemis is nationally known for his constant effort to bring progressive management ideas both to his own company's operations and to the industry as a whole.

In his own company—the Ozan Lumber Company of Prescott, Ark.—Bemis has carried out a continued program of modernizing machinery and plant layout. His aim has been to produce better lumber more economically. He has taken many trips to the major lumber producing areas of the United States in search of better operating ideas. He has also journeyed to Sweden and Finland to glean new operating ideas and especially to study Swedish type machinery in operation.

As a result of these studies, the Prescott plant has undergone many mechanical changes aimed at more complete utilization of the sawlog and higher quality of finished product. This program is carried on constantly.

Bemis is well known for his interest in the lumber industry. He is president of the Southern Pine Assn.; a member of the board of directors, a regional vice-president, and vice-chairman of the Committee on Products and Design, of the National Lumber Manufacturers Assn.; and a member of the board of directors of the Timber Engineering Company.

Hillman Lueddemann

It once took a newspaper editor an entire column to list the business and civic jobs of one of the nation's busiest lumbermen, Hillman Lueddemann, who is vice-president and general manager of Pope and Talgat, Inc. His many activities range from being president of the West Coast Lumbermen's Assn. to president of the Portland Rose Festival Assn.

Lueddemann is vice-president of the National Lumber .Manufacturers Assn., and associated with numerous other groups benefiting business and community affairs.

Lueddie is a dreamer with a practical bent, who is now head of the lumber division and active in the steamship end of one of the nation's oldest lumber firms.

His practical dreaming includes helping put together the St. Helen's Pulp & Paper Company years ago. Now, as president of the West Coast Lumbermen's Association he uses his speaking dates (average five a week) to urge the lumber industry to get out and encourage, promote and finance a wood chemical industry to use leftover woods after sawmilling. He proposes to have millmen develop chemical plants adjacent to sawmills where a constant source of wood is at hand.

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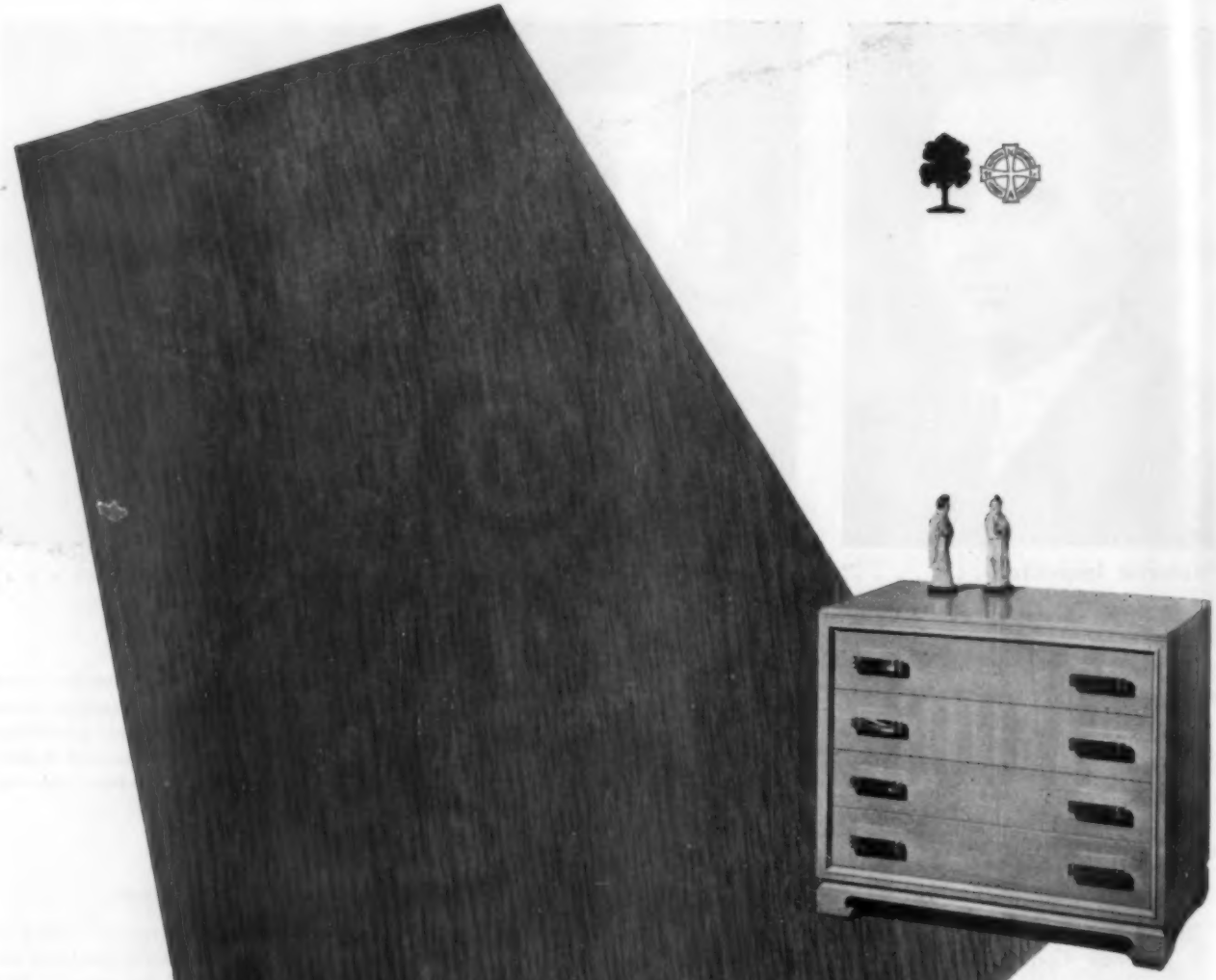


COMB-GRAIN WHITE OAK VENEER BY STEM, FOR FINER FURNITURE

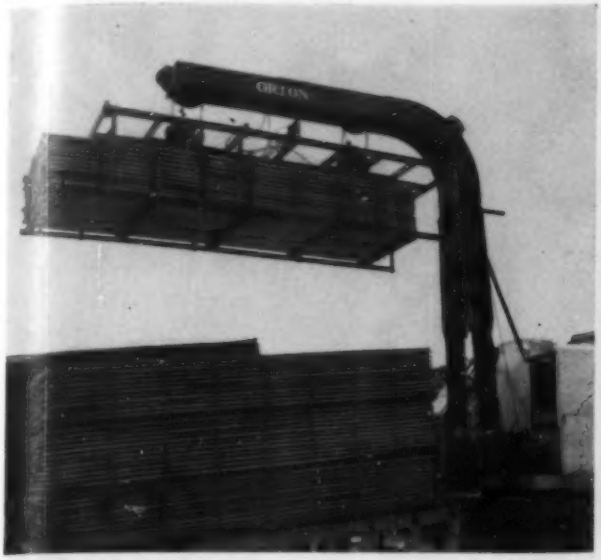
Customers Expect More From STEM and They Get It

Manufacturers of fine furniture are calling on us for more and more of our comb-grain white oak veneer. This results from the fact that they receive stock of uniform quality, and with no "flake" or "wild grain." See what we have to offer before placing your next order.

CHESTER B. STEM, INC.
818 Grant Line Road
New Albany, Indiana

These higher grades of
VENEER and LUMBER
manufactured and available at all times

American Walnut . . . Avodire . . . Hard Maple . . . White Ash . . . Yellow Poplar . . . Cherry . . . Indiana Soft Textured White and Red Oak . . . Butternut . . . Prima Vera . . . Honduras and African Mahogany . . . Knotty Pine . . . Sapeli . . . Special logs for special places . . . lumber from modern dry kilns.



ONE MAN in crane can stack load for air drying. Loads are stickered for kiln.

STEEL FINGERS controlled by crane operator releases load when it is in place.

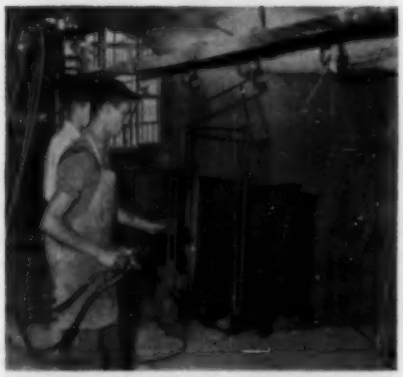
These Handling Ideas Can Save You Money

At Poinsett Lumber Co. constant checks have resulted in adopting these labor saving handling ideas. Machinery and layouts involved are within pocketbook of nearly every plant.

Poinsett Lumber Company, at Pickens, S. C., is an ultra-modern plant which takes logs in one end and ships completely finished sewing machine cabinets out the other.

In between these two operations is an up-to-the-minute saw mill, an efficient veneer plant, a furniture dimension layout, and a complete section for putting together and finishing the cabinets. The plant is all under one roof.

Some of the material handling methods which make this plant a highly efficient producer are shown here and on the cover.



PAINTING IS EASY with cabinets on conveyors.

ENDLESS RUBBER BELTS make sorting of veneer pieces into proper sizes and grades easy.

OVERHEAD CONVEYOR cuts handling and loading costs.

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COL. BOB MORGAN and Andy Angel inspect sample piece for perfect fit.

How Quality Control Improves Furniture Parts

Morgan Mfg. Co. creates customer good will by maintaining constant high quality. This means use of management of quality materials and machines—with continuous inspection.

At Morgan Manufacturing Company, Black Mountain, N. C., quality control is in evidence from the time the rough, green lumber arrives at the storage yard until the finished furniture dimension is carefully crated for shipment to customers.

Quality control, in fact, is the governing factor in all operations throughout the plant.

The first step chronologically is the dipping of incoming lumber to prevent degrading from stain.

After careful grading, piling and sticking methods are employed that maintain rough lumber quality while air drying is taking place.

As lumber is scheduled out of the piles for specific job orders, modern quality control really becomes evident.

The lumber, previously properly stacked for kiln drying, goes into modern kilns for a carefully worked out drying schedule which is based on both species and end use. Moisture content percentage is controlled to a fine point.

On page 30 of the August issue of Wood and Wood Products you will find a picture story that explains Morgan Manufacturing Company's modern material handling methods.

Lumber is moved directly from the dry kilns to tempering sheds (see photo) where controlled cooling assures that physical qualities of the lumber will not in any way be affected adversely.

After going through the rough mill, ending with the rip saws which cut out defects, the lumber, or rough dimension stock, is usually run over a jointer and built up on a build-up saw to achieve excellence of matching.

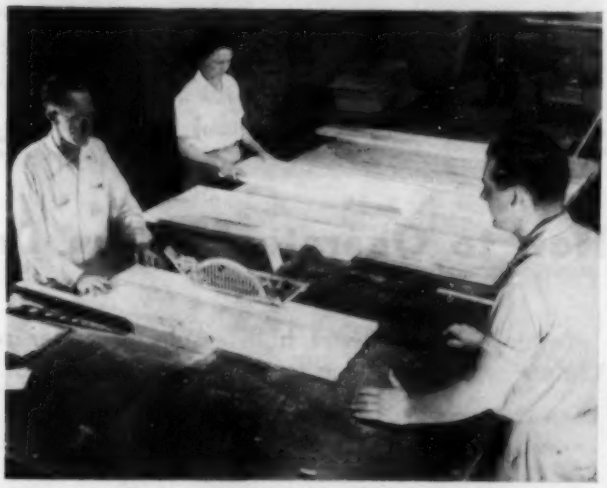
A member of the inspection department is an important member of the team in this matching operation so that the maximum quality of matching results.

Matched stock moves next to the glue reels, which are still the best means of getting quality joints. The stock is heated on heated coils to the proper temperature and controlled

INCOMING LUMBER is dipped to maintain grade by prevention of stain.

EXPERT KILN DRYING is followed by tempering in sheds at right.

DEFECTIVE PANEL is picked out after surfacing operation. It will be returned for salvage.



TRAINED WORKMEN rip defective section from panel. New piece will be matched and glued in place.

batches of highest grade glues are used.

After gluing, panels are allowed to condition for 24 to 48 hours to avoid poor joints.

At this point, the quality control department checks moisture content against requirements. Also, panels with possible defects can be sent back to the matching table where defects are taken out without loss of the whole panel. This is accomplished by cutting out defects and regluing with matched stock.

From this point, the dimension moves through lathes, shapers, borers, sanders and other machines which help turn out quality parts.

Tolerances are checked on all parts at completion and held to 1/64 of an inch. Stock is also sealed if specified.

With the end of the production line reached, each part is carefully inspected by the inspection department and rejected if it does not meet all standards.

WOOD IS WARMED before gluing.

Another important inspection and quality control point is the complete assembly of one piece of furniture from each run to check the fitting of all dimension stock.

It is by such complete, thorough and constant inspection and quality control that Morgan Manufacturing Company turns out the high grade dimension stock that develops new customers and keeps old ones happy.

MOISTURE CONTENT is frequently checked.

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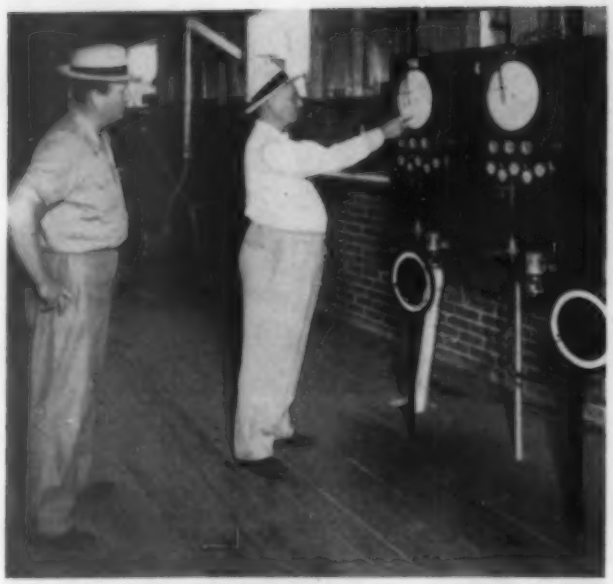


ACCURATE CONTROLS and complete records make possible quality wood drying.

WELL DESIGNED, water proof building is necessary to control wet bulb.

How to Operate Modern Dry Kiln

Better control of wet bulb results in better reconditioning. Watertight building and modern controls essential. Part II.

by Frank Cook

During the past few years many various and sundry experiments have been carried on in the field in an effort to improve wet bulb, and consequently reconditioning control.

Many have turned to specially constructed steaming or reconditioning rooms to reduce kiln time and improve conditioning.

Water has been injected into steam spray lines in an effort to cool steam or kill the surplus heat, and results have improved slightly under certain optimum conditions, but as a general rule, this has not been a satisfactory answer.

The most promising results have occurred where a large diameter pipe is used as an accumulator for 10 to 20 pounds steam. This pipe is hooked directly to the individual kiln steam spray lines and steam is admitted to the kiln through an instrument operated diaphragm valve. The source of steam for this accumulator can be exhaust or flash steam from trap action or turbines, with the provision for additional steam from the main steam supply being admitted to this accumulator through a reduction or pressure controlling valve when needed.

Provision must be made for killing the surplus or super-heat steam of this reduced steam by either water venturis or like means. This 100 p.s.i. steam at 337° F. can be reduced to 10 pounds steam, which has a normal temperature of 240° Fahrenheit; however, simply reducing the steam pressure has not changed the temperature, although it has changed the volume and pressure. Thus we have approximately 100° F. of surplus heat that we must get rid of. This can be done by using a water injection, which means that water is used to kill this flash, or the line can be left uninsulated, which is a means of radiating this surplus heat.

This accumulator can either be a large diameter pipe hung across the control room, or can be an oversize tank such as an old boiler shell. Naturally the larger the size of the accumulator, the better as to volume is the holding capacity of this unit, as volume is a critical component of such a system. The large volume differential between 110 pounds steam and this cannot be overlooked.

The killing or elimination of the superheat, as previously discussed, is a critical problem, but if done in an oversize pipe or tank, adequate provisions can be be made so that surplus water, in the liquid state, will not be carried into the kiln and heating efficiency will not be eliminated.

No definite set of rules or conditions concerning the attainment of a desired wet and dry bulb condition can be made because such factors as: (1) size of kiln in comparison to size of spray line; (2) tightness of building construction; (3) type of building construction as to insulation; and (4) quality of steam available all have a direct bearing on proper attainment in control of reconditioning schedules.

Special Rooms Used

Several operating companies have, after analysis, found that the reconditioning problem has caused them excessive lost kiln drying production time and, therefore, have turned to specially constructed rooms wherein lumber is removed from the actual kiln rooms and placed in these rooms for reconditioning.

Although it may appear on the surface to be an ideal answer, careful consideration must be given to the cost of such a unit, its efficiency as compared to using present kiln facilities, and the cost of rehandling lumber from the kiln units to and from the reconditioning units.

Assuming it is found practical to use special reconditioning units, these

(continued on page 46)

Photos courtesy Auto-Nailer Co.

1. **ASSEMBLY OF CHAIR** is started by nailing two pieces together.

2. **FIRST SIDE RAIL** is attached.

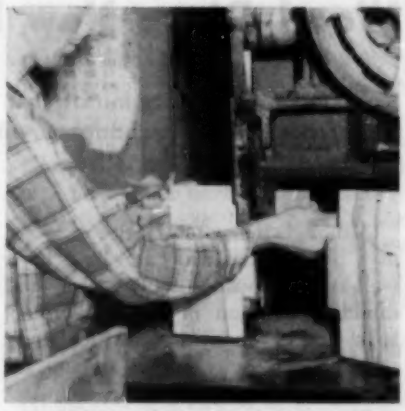
Design For Faster Assembly

You get maximum output and efficiency from modern nailing machine and operator by designing for easy, logical handling.

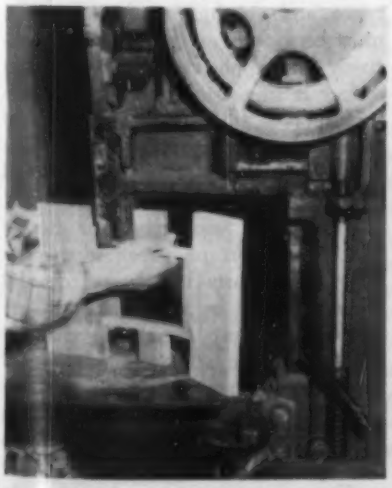
Proper design of a product often makes it possible for an operator to turn out a complicated product quickly and easily.

In this picture sequence, the machine operator is able to assemble the chair back in a matter of minutes—taking full advantage of the versatility of the nailing machine—because the component parts were carefully designed to handle easily and to go together easily.

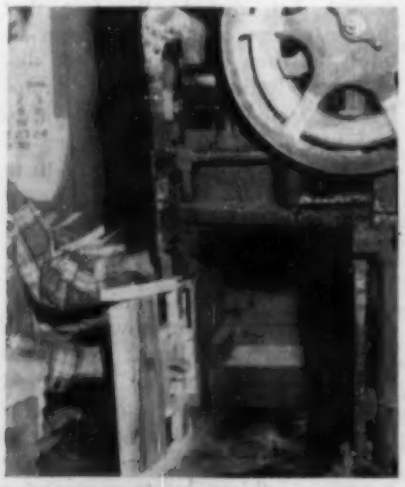
Such attention to design frequently will make it possible to take better advantage of machines and will help operators increase their efficiency.



3. **SECOND SIDE RAIL** is nailed.



4. **NOW FRAME PARTS** are added.



5. **THEN TOP RAIL** goes on.

6. **HERE'S** complete chair back.

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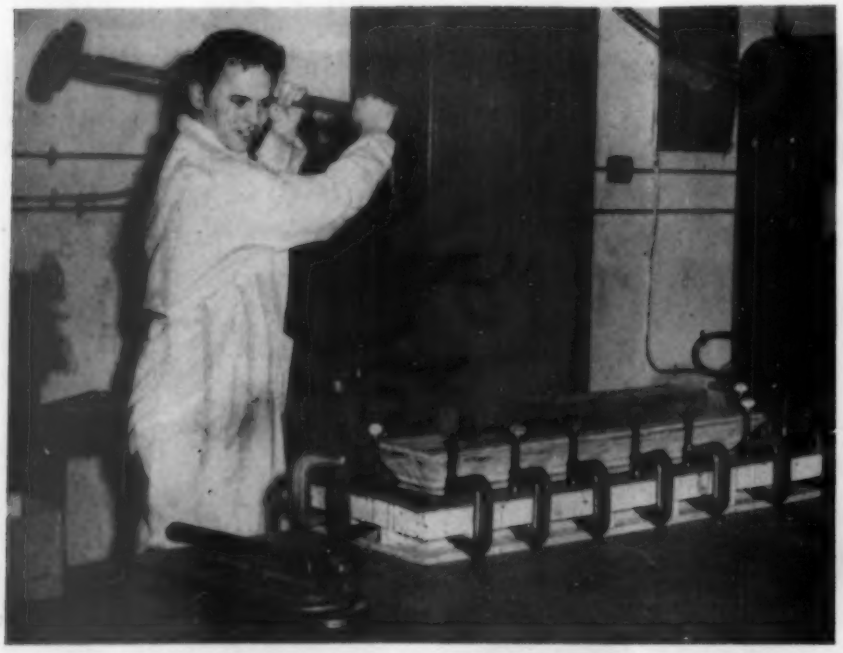


HAMMER IS USED to form a sheet-metal lightening fixture by means of mated wood dies. Heavy metal bar on top of male die prevents splintering.

POWER TOOLS are used to fabricate wood dies for the forming of sheet-metal prototype components.

Wood Dies—New Market For Wood Workers

Wood tooling cuts initial cost of metal prototype parts—dies can frequently be changed without complete retooling—new market potential opened up.

Although the potentialities of wood as a pattern material have long been well-known, wood tooling for the direct fabrication of metal products is a recent innovation which may save untold thousands of dollars for American industry.

Electrical Mechanical Development Company, Los Angeles, Calif., is successfully using wood tooling now.

The concern specializes in the fabrication of prototype products for manufacturers in the aircraft, automotive, electrical-appliance, and related fields. According to O. H. Wismer, who is responsible for the fabrication of the tooling, wood molds or dies are serving a twofold purpose in the forming of sheet metals:

(1) They are being made in a fraction of the time and for a fraction of the money required to fabricate prototype parts with more conventional tools comprised of cast alloys, plastics, etc.

(2) They can be used as patterns for the fabrication of mass-production tools, when and if a prototype part or product has been successfully tested.

Prototype products are, briefly, industrial test specimens which must be constructed in order to determine whether new product designs are commercially practical. Each must have every detail of a contemplated product if the merits of a design are to be ascertained with maximum accuracy. Yet, due to the fact that the design may require numerous alterations when discrepancies are disclosed in testing a product's prototype, it is not practical to fabricate and use all the expensive types of special tools which are essential in production work during the process of constructing a prototype.

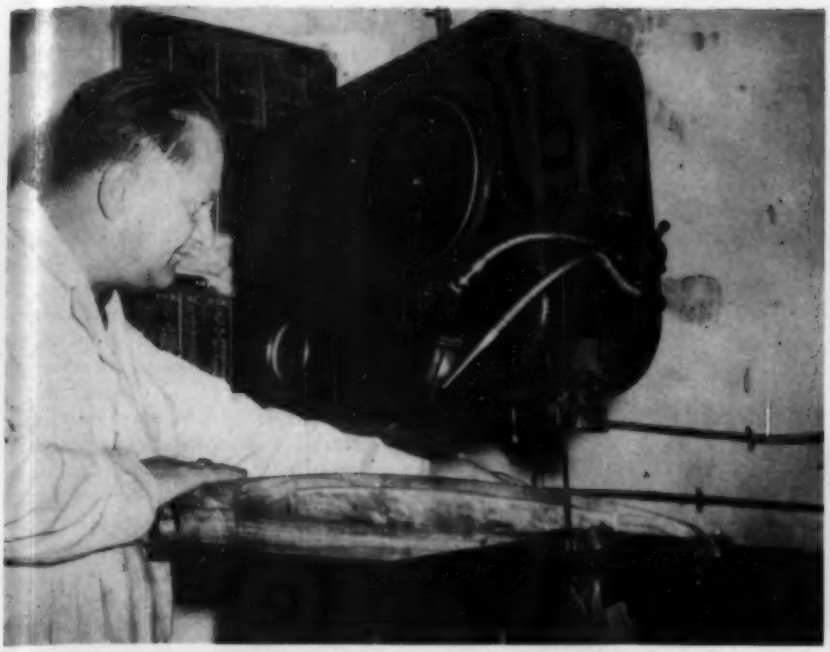
In some circumstances, prototype parts can be made and assembled with standard shop equipment—including lathes, power saws, etc., as well as hand tools. But it is virtually impossible to fabricate contoured sheet metal products without a certain number of special tools—such as molds or dies. Since these tools may become worthless due to engineering changes after one or two fabrication operations, it is necessary to construct such tools at the lowest possible cost commensurate with the qualities required.

The importance of reducing costs in the construction of prototypes, which are at best expensive, cannot be over-emphasized. For example, certain aircraft manufacturers have spent more than five million dollars in fabricating prototypes for individual airplanes which were later mass-produced and sold for a total price of about $50,000 per plane.

It is frequently the cost of prototypes and production tooling which must be amortized by the sale of relatively inexpensive products that makes it impossible for many manufacturers to utilize immediately new technical information in the development and production of improved products.

The use of wood molds or dies for the fabrication of sheet metal prototypes or parts has been regarded as impractical by most industrial engineers, because the best grades of wood lack the surface hardness and mechanical strength which is essential to the stamping or press-forming of comparable articles in production work.

However, experience aequired by



LIGHTING FIXTURE, as formed at left, is here removed from the die.

WOOD MALE DIE, female die and metal part formed with the dies are shown left to right.

Electrical Mechanical Development Company shows that wood tooling can be used to duplicate individual sheet metal parts or products more than a half-dozen times, if necessary, without a loss of essential tooling details—due to the ductility of sheet stock plus the fact that wood materials have excellent compressive strength.

The economic significance of this experience can be indicated by comparing the methods of fabricating wood mold or dies and other types of "temporary" tooling. Where the cheapest of cast-alloy stamping dies would require an expenditure of several thousand dollars (including the fabrication of tool patterns and molds, the melting and casting of metals, and the machining or finishing of the cast tools), two chunks of wood can be planed, shaped, sawed, and finished to serve the purpose of cast-alloy dies at a cost of less than $500.

Also, where the time element is vital, a wood die requires no more than a day's work for every week that would be devoted to the fabrication of identical cast-alloy tooling.

Materials used in the construction of wood tooling for prototypes have ranged from the more expensive grades of hardwood veneers to the least-expensive types of soft-pine lumber. Hardwood is most essential where it is necessary to provide tooling surfaces with exceptional resistance to abrasion.

Tools with relatively simple contours are usually machined from solid blocks of wood. More complex dies are fabricated as parts, which are subsequently assembled with nails and glue. Nails are used to provide cold-curing pressure for assembled dies. As a rule, there is no need to remove the nails after the glue has bonded the components of an assembled tool.

In some cases, a single wood die or form block can be used to fabricate a sheet metal part—since pressure applied via a rubber blanket to a sheet positioned over the die will cause the sheet to be sandwiched to the contours of the tool. But so far most parts have been made with mated (male and female) dies.

Either a male or a female die may initially be fabricated or assembled, depending on the procedure that is most convenient in each circumstance. The first portion of a mated-die set is frequently used as a sort of pattern or form in constructing the male or female mate.

After it has been fabricated or assembled, each tool is sanded for smoothness. Then, if several duplicate parts are required, the tool surfaces may be shielded with conventional coatings—such as lacquers, enamels, and shellac.

Heavy grease lubricants are sometimes smeared over the coated die surfaces to minimize the effects of friction—as where sheet materials must be drawn into cuplike articles with extreme depth dimensions.

Sheet stock is generally cut to the outer-wall dimensions of a female die, prior to forming operations. Then C-clamps are used around the edges of the die to hold the cut-metal sheet in a suitable position over the female die cavity.

The male die is centered over the latter die cavity on the sheet stock, and forming is next accomplished by applying pressure to the male die. Forming pressures may comprise hammer blows (as illustrated), static loads, or compressive forces from a hydraulic press.

Where prototype components fail to perform satisfactorily, due to discrepancies in a design, it is frequently possible to incorporate engineering changes on previously-used prototype dies so that no new tooling will be required to fabricate an improved version of a prototype.

A good example of how wood dies save money was recently provided by the construction of the prototype housing for a streamlined washing machine. This was a relatively simple job, but it would have cost an estimated $45,000 if standard prototype tooling had been used. Wood tooling was actually used, and the total cost of the prototype was less than $4000. When production tests were completed, the washing machine manufacturer was able to use the wood dies as patterns for the fabrication of sand molds in which metal stamping tools were subsequently cast for production work.

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PLYWOOD TRAILER BODY is one of many new ways utilizing wood helps management.

Five Management Problems Utilization Can Cure

Better wood preserving methods and wider use of wood fibers will help management sell more of the tree. Part II.

(Editor's note—Other ways utilization helps solve management problems were discussed on page 24 of August Wood and Wood Products.)

by Lyle F. Watts

There is yet another field—that of preservation—in which there is renewed activity. It has become clear that there is a very large general field for wood preservation against decay and insect attack by sufficiently economical methods. That field transcends in volume the comparatively limited use of preserved wood to which we have been accustomed in the past—that is, for crossties, piling, bridge timbers, mine timbers, and the like. The chemical industry continues to come up with new materials that offer promise as cheap preservatives.

In all problems of management, whether dealing with old-growth, young growth, hardwoods or conifers, it has become apparent in recent years that major contributions can be expected in utilization developments based upon fiber. There was a time not too long ago when the three major pulping processes were quite critical of the species and qualities of wood used.

The sulfite process was practically confined to spruce, the true firs, and hemlocks. The kraft process, or sulfate, was more adaptable, and could take in practically all the conifers, and in recent years has been applied to many hardwoods. The groundwood process was restricted to those species giving pulps of adequate strength characteristics and bleachability, or light color to begin with.

Many years ago the Forest Products Laboratory recognized the approaching problem of inadequacy of our pulp species to meet rapidly expanding pulp and paper requirements and started a program to expand the pulpwood base. This program has been eminently successful.

In recent years a great deal of attention has been given to increasing the yield of pulps by the so-called semichemical processes. These processes have been applied to a great many hardwoods and softwoods with uniformly successful results when proper variables have been introduced to take care of the varying properties of the woods. It can be stated now that about any species available in sufficient quantity can be made into a commercially useful pulp product.

A major part of the requirements in these semichemical and high-strength kraft pulps has arisen in the packaging field; witness the very rapid growth of the corrugated-board and paper-board industry. About 20 years ago the Forest Products Laboratory began a research program on the fundamentals of the manufacture of corrugated boards. That program has paid rich dividends, not only in a tremendous increase in use for packaging of civilian goods, but in rapidly expanding programs in the packaging of military goods. These fiber products have displaced a large amount of lumber in the packaging field. This is a major gain for forestry, for the reason that the kinds and qualities of wood going into these fiber products are much less restricted than was the case with lumber for packaging.

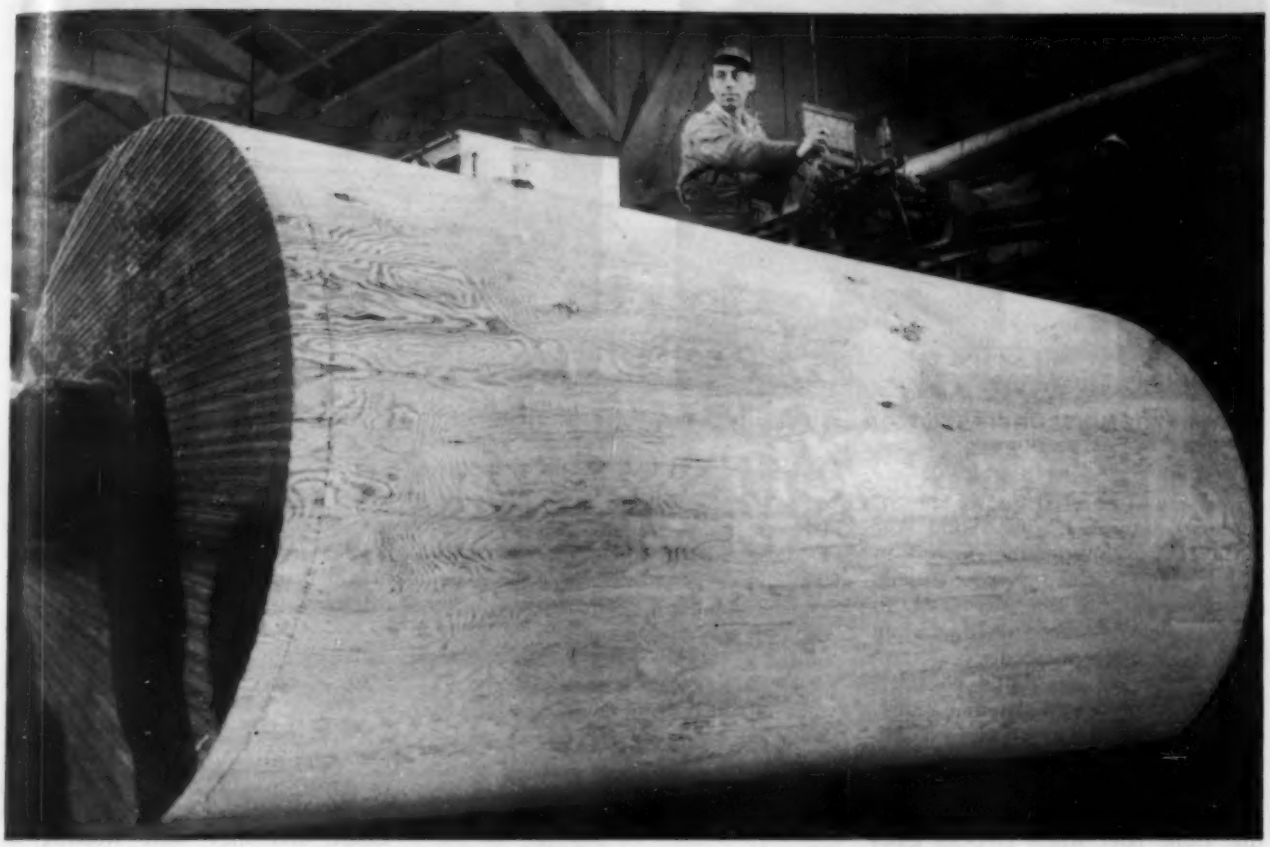
In recent years, also, developments in the so-called synthetic-board field have been stressed. The softboards and the hardboards have made very heavy inroads into the general field of wood consumption. While it is true that no artificial wood fiberboard has yet been produced that has the oriented strength properties of wood, nevertheless for a lot of uses the fiberboards serve well.

As yet, few if any of them can be prescribed for general exterior use, because dimensional stability and ability to maintain their structure through long exposure have not yet been developed, except by rather costly resin impregnation. Work now in progress at the Laboratory, however, gives promise of the development of processes for stabilization of fiber products economically. That would be an end greatly to be desired, because again fiberboards can take a very wide variety of qualities and species. For example, even the old-growth, white-pocket Douglas-fir makes satisfactory kraft pulp and satisfactory fiberboard, and this sort of industry could use the wood waste now developed in a wide range of forestry operations.

New Fields

Now we come to one of the newest and most interesting fields in which research is operating—the field of sandwich construction. One of the most important applications of this type of construction is in the field of housing. A small test unit built of

(continued on page 79)



HIGH GRADE VENEER LOGS are backbone of hard surfaced plywood.

Now There's a Hard Surface For Fir Plywood

Modern glues and presses plus waste scrap available at any plywood plant make possible hardboard veneer surfaces.

by Tom Perry

Plywood production has always been divided into two camps; hardwood plywood, mostly in the east, north and south, with major emphasis on appearance; and softwood plywood, almost exclusively in the far west, in which structural and utilitarian qualtites have been dominant factors. Hardwood plywood dates back to about 1870, when veneer lathes and slicers had reached a practical stage of development. On the other hand, softwood plywood did not gain recognition until 1905. Not only are there different objectives for the two types, but there are marked differences in manufacturing procedures as well as in methods of distribution.

Prior to 1905, Douglas fir veneer had been cut, on the Pacific Coast, for fruit and vegetable packages and containers, either on rotary lathes or on shaving machines, which cut flat slices from dimensioned blocks or bolts. Quality was a minor consideration, since it was a one-trip package, with little or no requirement for durability and no salvage value.

At the Lewis & Clark Centennial Exposition, held in Portland, Oregon in 1905, a few panels of Douglas fir plywood were exhibited. They were considered more or less of a novelty, being practically hand made with animal glues under hand screw pressure. It is well known that Douglas fir plywood, in relatively small pieces, had been used for door panels some years earlier, but the concept of large structural panels, such as were exhibited in 1905, was a new idea that progressed slowly.

During the early years of the nineteenth century, lumbermen on the Pacific Coast were too busy at their lumber mills to give much serious attention to what was then considered a minor side line, Douglas fir plywood. Up to that time the makers of plywood (Hardwood) had been important subsidiary suppliers to furniture manufacturers in the eastern half of the United States. There was no significant amount of furniture made in the far west, and therefore little recognition of plywood as a salable type of wood, nor was there any encouragement toward establishing such a type of factory.

It is a far cry from the bulky and rough processes that reduce logs to lumber, in contrast with the refinements needed to cut veneers, to glue them into plywood, and to turn out a trimmed and sanded product.

Only animal glues were available until about 1910, when vegetable (cassava) glues were developed, but neither were water resistant, and

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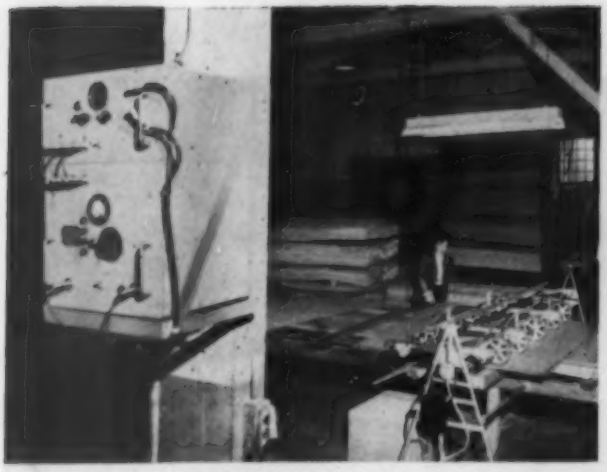
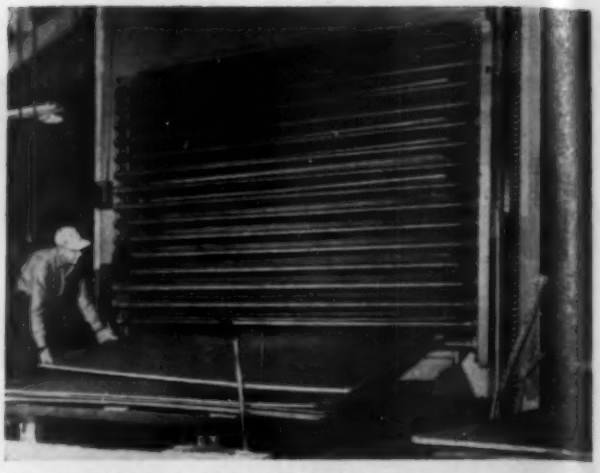


AUTOMATIC MOISTURE DETECTOR continuously scans stock for excess moisture.



FRESH FROM GLUE SPREADER—panels are subjected to heat and pressure for permanent bond.

neither could be used for weather or marine exposures. During World War I, there was considerable interest in blood albumin glued plywood made in hot presses, but this was mostly in the eastern hardwood field. Casein glues became commercially important about 1916-18, and found considerable use in fir plywood manufacture, but their high cost was quite a handicap. They were undoubtedly a stepping stone in fir plywood progress, but they did not give the real boost that came later when soybean glues were developed.

The advent of wood glues, extracted from the residue of soybeans, about 1923, gave distinct impetus to the making of fir plywood, since they provide substantial water resistance, far better than the animal or vegetable glues of the time, and they were much lower in cost than the casein glues. With the wider availability of glues made from soybeans grown in the United States, about 1926-27, the Douglas fir plywood program was really under headway, and its value as a structural material was gaining distinct recognition in the building industries.

Adapting a new species of wood to plywood, evaluating new glues as they became available, and forseeing the opportunity for the utilization of structural plywood were distinct steps in product development.

Product Development, 1925-1935

The decade from 1925 to 1935 was one of steady growth, during which soybean glues were dominant, with substantial water resistance, and resulting in plywood classified as the "Moisture Resistant" type. This growth, however, was restricted to the use of plywood in locations protected from substantial moisture. There was much searching for more durable glues to widen this field of utilization. Heat reactive resin adhesives were known to be in use in Europe and they were under careful study here.

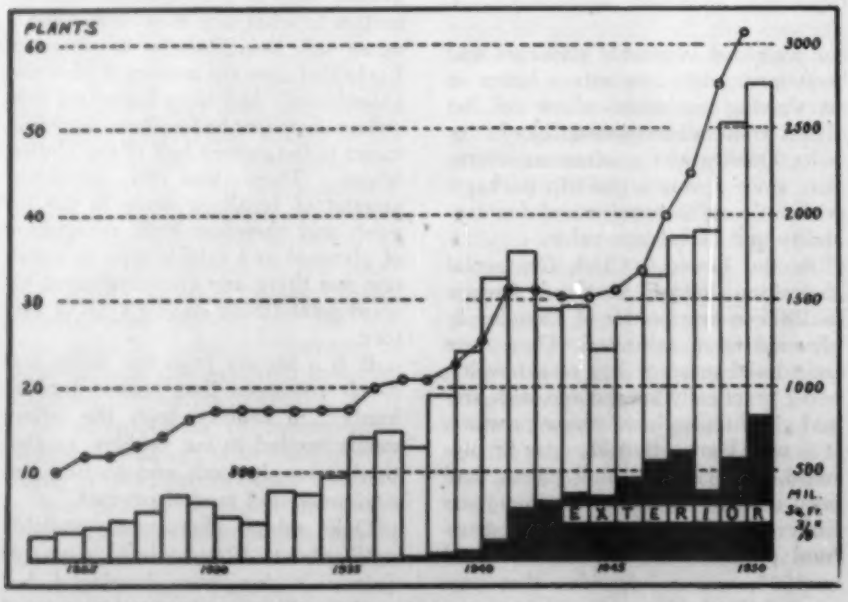
Fir plywood as a structural material had found its place, even though its applications were limited. The industry, consisting of some twenty plants in 1936, was located in the same geographical area, on the Pacific Coast, and they were working together, informally, in an efficient promotional campaign.

During this decade there was much study of grading rules and grade marking, along lines that had been developed in the lumber industry. With the co-operation of the U. S. Bureau of Standards, this resulted in CS-45-33, as of February 15, 1933. Such grading rules are particularly important in a non-homogeneous material like wood, to develop clear understandings between manufacturer, seller and buyer. Sizes, thicknesses and constructions were standardized, and special purpose utilizations were developed, such as concealed sheathing, where appearance was negligible, or concrete forms, where surfaces must be free from transferrable defects. Data on strength characteristics and design requirements were in the process of collection and distribution. These factors were all essential steps in product development.

In stressing the major applications of fir plywood as structural, it should be noted that many grain growths are attractive, and that irregularly grooved surfaces may be developed to add pleasing shadow effects. The decorative features of Douglas fir plywood should not be overlooked.

The long search for a completely

(continued on page 38)



RAPID GROWTH OF PLYWOOD manufacture is traced on the chart.

WHELAND

LOG DECK EQUIPMENT

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PROFITABLE INVESTMENT

LOG UNLOADER

Controlled by log deck man who operates the log jacker. When log is in position in front of the log deck the Log Unloader kicks it from trough to deck. Log Unloader shown installed in double mill. Single mill needs only one machine.

STEAM OR AIR OPERATED

LOG STOP AND LOADER

Essential where a nigger is used. Controlled entirely by sawyer. Quick, sure action. Self cushioning cylinders. Rocker arms carefully bored and fitted onto shaft with two tapered keys located on quarters.

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Quick acting. Easy to handle. Balanced valves. Self cushioning cylinders. Cast steel nigger bar base. Radius bar. Wide top tooth. All teeth are hinged and fall back behind face of bar. Trouble free operation.

Many mills can cut their payroll and speed their production—and pay for this equipment out of savings and extra profits in less than twelve months.

Wheland Steam or Air Operated log handling equipment is on the job every day. It is just as fast at the end of the day as it is in the morning. It never has a hangover, never fails to show up for work, and it is so sturdily built that it will give you fast accurate service for many years with few, if any, days when it is "sick" and off the job.

If you run a sawmill you have to handle logs. Steam or air in Modern Wheland Log Deck equipment can handle those logs faster and at a lot lower cost.

We'll be glad to send you Bulletins. Or one of our experienced men can go to your mill, study your operation and give you the facts about how much money you could save by letting Wheland equipment handle your logs. Write us. There is no obligation and we may be able to show you how YOU can make a lot of extra money.

THE WHELAND COMPANY

Chattanooga, Tennessee, U. S. A.

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PARTS ARE DESIGNED for rapid assembly. Pieces are precut and supplied to operator in easy-to-reach bins.

GROUP OF DOORS are pressure clamped for gluing.

Small Plant Assembly Line Ups Cabinet Output

Hyde Park Millwork Co. production line makes materials available to each operator at right time and place—stepped-up output results.

In Cincinnati, Ohio, Hyde Park Products Company, a small kitchen cabinet manufacturer, turns out a surprising volume of cabinets with a small crew.

Key to this production record is careful design of the individual units coupled with well planned layout so that materials flow easily from one operation to the next with a minimum of handling and no back-tracking.

Hollow core doors, for example, are designed so that one man can put the various parts in a jig, with the glue applied, in a matter of moments. He assembles a dozen doors, then applies pressure to the group as pictured. In this way, one man assembles many dozens of doors in a day.

The operation is possible first, because the component parts are designed to fit together in the jig without waste time; and second, because bins with the proper parts are strategically located within easy reach of the operator. It is management's job to see that the bins are filled with proper sizes of material.

END SECTIONS are being assembled here. Notice parts placed in bins for convenience of operator.

Controlled Supplies

Hence, by controlling material supply and jig, management can schedule long runs of the same door, or shorter runs of various sizes of doors, without slowing up the production speed of the operator.

Other basic parts of the cabinets are constructed in the same way.

The same system is then applied to the assembly of the component parts. After doors, sides, shelves and so forth are completed, they are fed into location where they are handy to an operator.

Equal planning for ease of handling is found in the paint, hardware and packaging departments.

Such planning results in eight to ten men being able to turn a large volume of completely finished and packaged quality kitchen cabinets every day.

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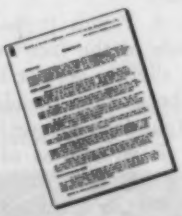
You can store UFORMITE in bulk or in drums—an 8,000 gallon tank car can be drummed in a few hours, without special equipment. You have no storage worries; UFORMITE has excellent stability.

You can buy UFORMITE adhesives in two bulk grades—UFORMITE 435 and UFORMITE 400—to meet all production requirements. Both grades feature convenient handling characteristics, time-tested performance, and a choice of catalysts for all bonding needs. Bulk shipment is available from our Philadelphia plant and from Charlotte, N. C.



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THE RESINOUS PRODUCTS DIVISION

Washington Square, Philadelphia 5, Pa.

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Methods That Control Furniture Panel Checks

High grade finishes help reduce surface fatigue in these hardwood panels. Part II.

by R. A. Holcombe

Another group of panels was exposed to circulating air at a temperature of 140°F for a period of two weeks.

Results of the conditioning tests on the additional group of panels investigated are discussed under the subject of panel species involved.

Both species of panels reacted identically to the high-low alternating humidity cycles and high heat exposure. No checking or other defects were observed in either species during or at the conclusion of high and low alternating humidity cycles. Neither tightness of face veneer nor quality of finish had any apparent effect on panel reaction to these cycles. The same statement is true of cherry and maple panels exposed to a temperature of 140°F for a period of two weeks. Low and high grade lacquer and varnish finishes on these species remained unaffected.

The behavior of oak veneered panels to the series of conditioning tests was quite different than that of walnut panels. Defect developments in the finish took the form of fine hairline-like checks occurring not over filled pores, as in walnut, but over areas occupied by medulary rays and adjacent areas containing fiber tracheids and longitudinal parenchyma. Only in rare cases were checks observed directly over a filled vessel. This lack of check development over vessels in oak panels (as compared to walnut panels) may be due to a more rapid shrinking and swelling of the dense wood areas between pores than in pore areas in oak. The stresses developed in the denser wood areas apparently reach a maximum and cause a rupturing of the film before stresses in vessel areas develop.

During the prolonged cycles of high and low humidity, minute checks appeared at random over the rays and adjoining areas. In time, these checks lengthened, became wider, and their edges appeared to turn slightly upward, lending the appearance of an eruptive action. This condition was exhibited by approximately 60 percent of the panels veneered with the loose face exposed. Figure 3 illustrates typical checking as it occurred in oak panels which had been subjected to several cycles of prolonged high and low humidity.

Since there was no significant evidence of checks appearing over filled vessels, the variables involved in methods of filling and procedures taken prior to and subsequent to filling were assumed to have no effect upon panel behavior under the conditions employed. Unfilled panels checked in the same manner as panels which had been filled.

In general, panels containing finishes other than a high grade varnish exhibited checking. Under the severe conditions of alternating high and low humidity, even panels sprayed with a high grade varnish were subject to checking. However, less than 40 percent of those panels containing this finish developed checks.

Oak test panels subjected to conditions of high heat showed evidences of checking after two days. The character of check development was similar to that observed in humidity conditioned panels except that checks caused by heat appeared not to have raised edges. Checks were, in the main, confined to areas directly over medulary rays or adjoining areas not containing vessels. All panels showed checking to some degree. Those with a high grade varnish finish, however, showed a fewer number of checks than panels containing any of the other finishes.

Walnut Panels

The set of walnut faced test panels which was subjected to longer periods of alternating high and low humidity provided additional evidence regarding the mechanics of defect developments. Under conditions of high humidity, all panels (except those which remained unfilled) developed minute ridges over filled vessel areas which seemed to remain unchanged until conditions of low humidity were introduced. Under this condition, the ridges appeared to have lessened in height and otherwise flattened out. Upon reintroduction of high humidity, the ridges reappeared. At the conclusion of three complete cycles of high and low humidity, during which the panels reached weight equilibrium before each change, small checks occurred over filled vessel areas. Figure 4 illustrates this early stage of check development. The checks are very narrow and relatively short; each appearing over a filled pore or vessel.

The additional variables employed in the filling operations on walnut panels appeared to have no significant effect upon their resistance to checking or filler activity. The placement of face veneer with respect to the exposure of tight or loose face was not as significant in this group of test panels as it was in the preliminary set of walnut panels described earlier.

Prolonged temperatures of 140°F were responsible for the development of checks in all walnut panels, regardless of the variables of manufacture involved.

1. Conditions of high humidity are responsible for the development of minute ridge-like protrusions over filled vessel areas in walnut veneered panels.

2. Conditions of extended exposure to alternating high and low humidities appear to cause a fatigue of the finish film, resulting in the following:
   (a) The development of checks over filled areas in walnut panels.
   (b) The development of checks over areas between pores in oak panels.

3. Temperatures of 140°F at low humidities are responsible for the development of checks in finished oak and finished walnut, regardless of variables involved in their manufacture.

4. Panels prepared with the loose side of the face veneer exposed have a slightly greater tendency to develop checks than panels prepared with the right face exposed.

5. Sharpness of the knife used in cutting face veneer has some effect upon the checking of veneered panels.

6. The finish on panels prepared from close-grained woods such as maple or cherry is not appreciably affected by relatively severe conditions of humidity or heat.

A Tremendous VARIETY of Uses...

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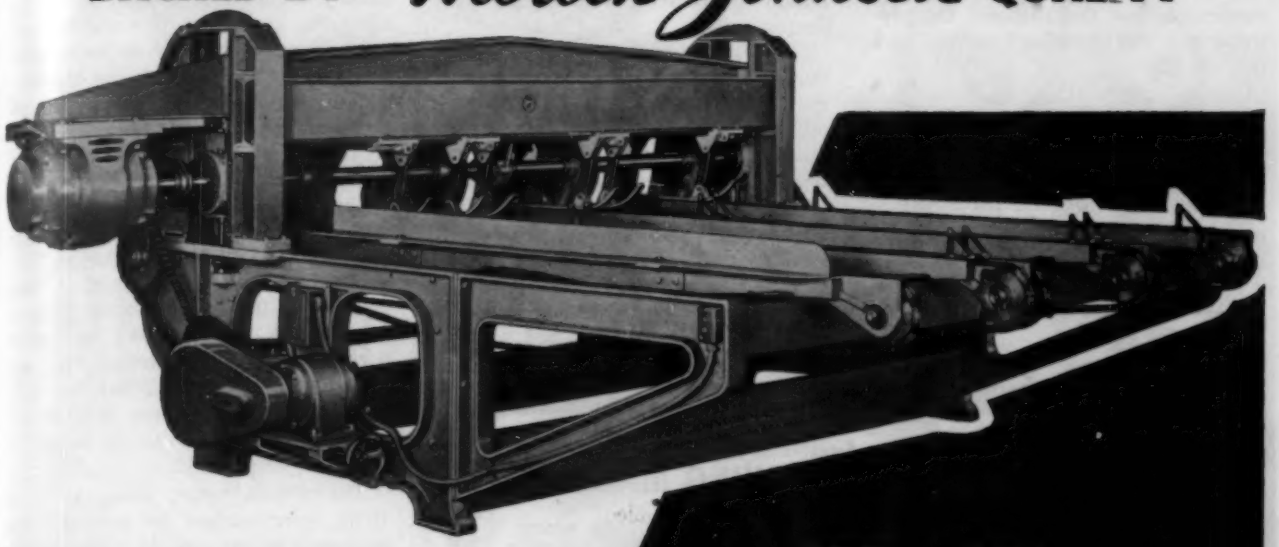

NO. 435

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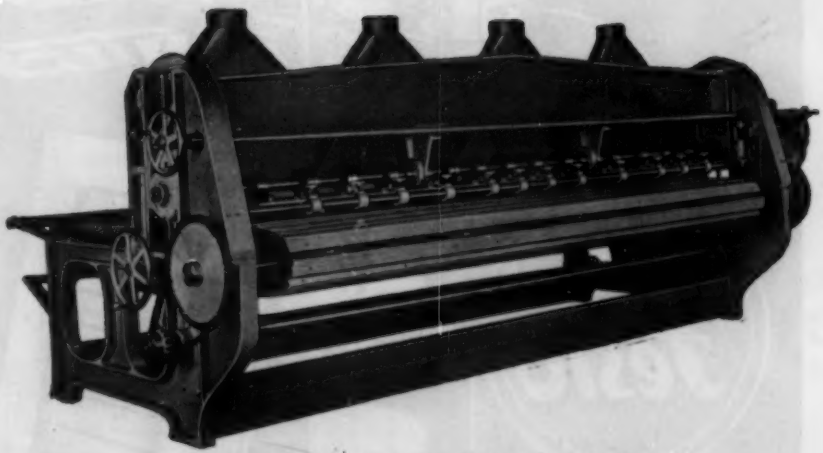
Sizes run from 4′ to 24′. Let our engineers work with you to develop a combination unit that will fit your needs.



Rear View of 144x48 Slat Bed Machine

Write for Bulletin No. 435

Mereen-Johnson MACHINE COMPANY

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Plywood

(continued from page 32)

waterproof glue had not yet been successful, but the demand for plywood use was growing by leaps and bounds.

Product Development Since 1935

The period from 1905 to 1935 provided the foundation for the astonishing growth of the fir plywood industry in the years following 1935. Product development over the years, had evolved an acceptable and salable product, but there were still limitations. Most of the basic techniques had been worked out, and the production statistics showed around one-half billion square feet, from twenty producing units.

The major and urgent problem was that of an adhesive that would permit the use of fir plywood under continuous or intermittent exposure to maximum moisture without serious weakening of the glue joint. If and when such a waterproof adhesive could be found or developed, it would justify offering to the trade an "Exterior" type, which would have maximum durability and be supplementary to the well established "Moisture Resistant" type, which would then became the "Interior" type.

The synthetic resin adhesives, previously mentioned, proved to be an adequate answer to this waterproofness. Phenol-formaldehyde resins were found to be most useful, but they required hot pressing. Production of phenolic resin bonded plywood started in 1934-35, but it took several years to install hot presses and provide the necessary supplemental equipment, such as spreaders, loaders and trimmers. In 1941, the production of "Exterior" type plywood reached one hundred million square feet, about 6% of total production. Ten years later, in 1951, the "Exterior" type accounted for some eight hundred million square feet, or some 30% of the total production, as can be noted by the chart on page 32.

The fifteen years, from 1935 to 1950, were marked by several other important milestones. (1) The organization of the Douglas Fir Plywood Association in 1938 strengthened the co-operation that had existed, and provided a firmer basis for intensified research, for product development, and for sales promotion. (2) This was followed by the Plywood Research Foundation, in 1945, a separate but affiliated organization, which specializes in research. (3) The specifications for Douglas fir plywood, originated in 1933, were strengthened under date of November 1, 1948 (CS-45-48) to supplement the established dry, wet and boil tests with a fire test, which must develop no delamination in the glue line due to combustion.

As the volume of plywood production increased, it became evident that the supply of long, straight and clear "peeler" logs, as they became available in normal logging operations, was inadequate to satisfy the demands of the plywood operators. It became necessary to accept logs of lower quality and to modify the standard specifications by eliminating what had been the select grade.

Product Development in 1950

A number of steps in this long series of product developments have only been outlined, but there are some interesting and competitive developments now under way that may be worth more careful examination. They may be considered a typical pattern of the processes involved in many previous developments. To paraphrase "history in the making", they may be

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Cuts grooves in window-shutters, louver-doors or anything where accurate fast spacing is required. Adjustable for left and right angle, vertical and horizontal slots. The machine is widely used for boring dowel pin holes in door styles etc. and for light mortising. Clamping, infeed and grooving performed with single lever movement.

INSURES FAST ACCURATE WORK

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Write for catalog and prices.

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- SELL MORE
WOOD PRODUCTS:

NELSONIZE
THEM
AGAINST
DISTORTION!

No worry about warp here!
Nelsonized drawer will also resist stain, of anything from water to ink. (Photo courtesy Hazard Editorial Offices. From the Indiana Desk Co. display at a Wood Office Furniture Institute exhibit).

To clinch the big orders here's a real selling feature: DIMENSIONAL STABILITY!

NELSONITE is the best insurance ever developed against warping wood or stuck doors and drawers. Proven success on everything from boats to bureaus. Its unique formula carries deep into wood fibers, seals and locks them against moisture damage.

NELSONITE lends other useful properties to wood. It's an excellent dirt and stain repellent, keeps surface easy to clean or wax. It drastically reduces grain checks.

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Independent lab reports (sent on request) show NELSONITE has distinctly better control of shrink and swell than any other stabilizer. The final test is yours to make!

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We are interested in a Nelsonite formula for the following wood and wood products:_____
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called "development in the making".

One of the natural characteristics of Douglas fir is its relatively low density, varying from the soft areas of spring wood to the hard spots of summer wood. As a consequence, fir plywood while light in weight and very strong, presents a surface, normally, that cannot be given a smooth glass like finish which completely masks the fibrous structure of the wood. While this problem had been recognized for some years, a satisfactory solution had not been found. Neither sanding or scraping nor careful planing gave the answer. Heavily loaded finish coatings were equally ineffective.

In most structural uses this grain effect is of no significance, as in sheathing, sub-floors or proof boarding. Where strength is the dominant requirement, as in hollow girders or packaging, it is unimportant. There are far more instances where the natural fir grain is favored or is acceptable, than cases where it falls short of the requirements. Two of the latter can be cited: (1) the transferability of this grain figure from fir plywood used as concrete forms for architectural surfaces; and (2) the obtaining of smoothly painted or enameled surfaces which mask this grain figure. Product development required an answer to this problem in order to preserve these critical applications for fir plywood utilization.

The most practical approach appeared to be some type of outer layer, which would serve as an efficient masking surface, would not be too costly, and would not unduly complicate production procedures. Neither hardwood veneer faces nor metal faces appeared to be encouraging. However there were three directions that seemed of sufficient promise to justify further development, both in the factory and in the market.

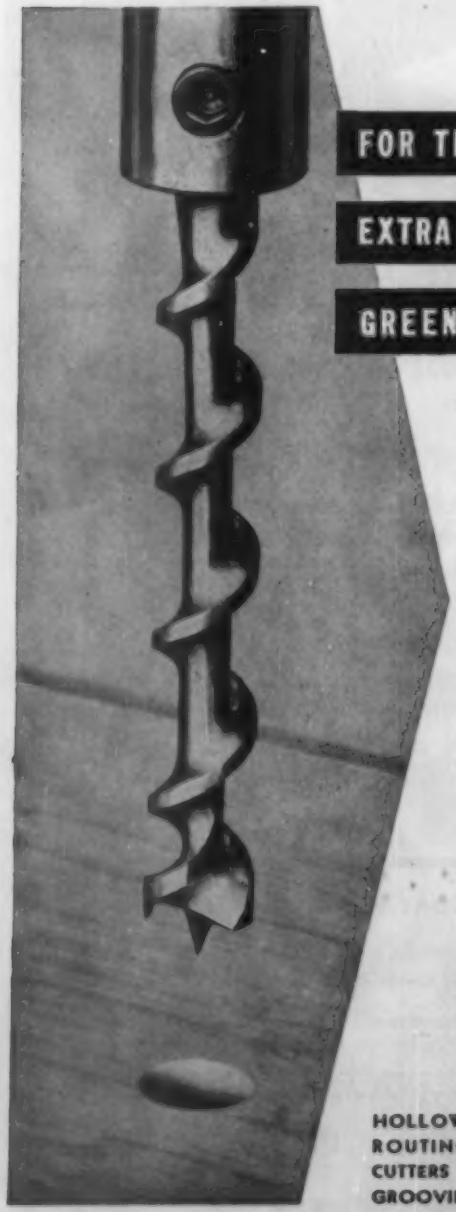
One was the use of several sheets of resin impregnated kraft paper as outer faces, which did not always produce a complete masking, and required either a releasing agent in the adhesive or non-adhering surfaces on the hot press platens or cauls. This type has been in substantial production for several years and many users have found it acceptable.

Another was to spread some type of ground wood mash, containing a resin binder, over the plywood surface, to be pressed smooth, densified and cured in a second hot press operation. While not in as large production as the resin-kraft faces, it has been found serviceable for a number of applications.

The third, developed in the last year or two, is too new to have won wide acceptance, but it has several advantages in manufacturing procedure. This development consists of fir plywood with hardboard faces, which could be used in lieu of fir veneer faces, could be assembled and glued with the veneer layers, using the same hot press adhesives, and trimmed with the same saws. This new product was given the name Plyron, and its manufacture was started with hardboard which was purchased on the outside. It was realized, all along, that the ingredients required to make such hardboard were plentiful at any veneer plant, waste wood from edgings, cores, trimmings, and round up, all of which had little value except as fuel. Additional equipment and know how were essential, but presented no serious obstacles.

As the development progressed it was found that this hardboard, of an approximate specific gravity of 1.0, would mask all but major defects in the inner veneer layers, substantially improving the yield of the log, percentagewise. The hardboard itself could be made with a smooth dense surface for the outer surface of the plyron, and a gluable, but slightly roughened reverse that would adhere

(Continued on page 78)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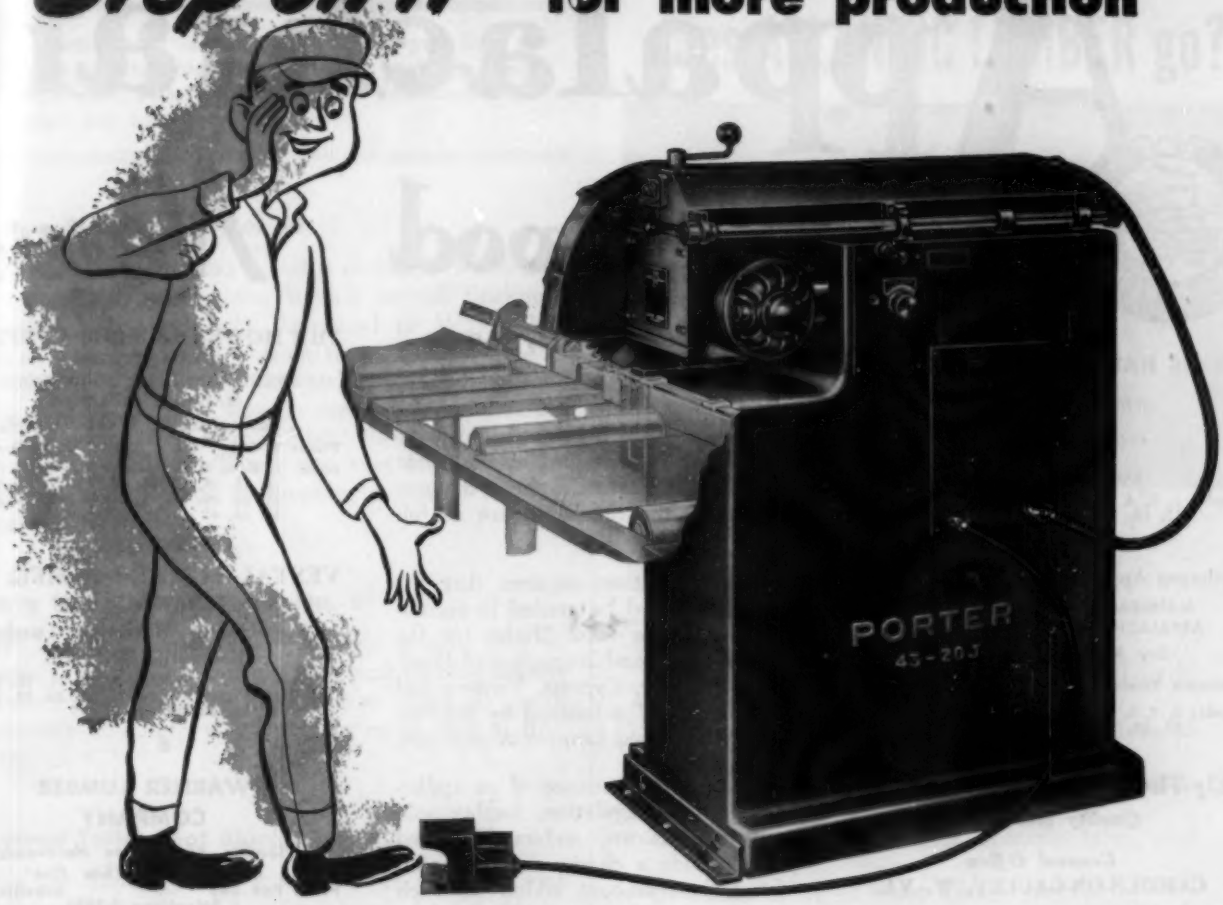

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New Ceiling Prices Defined

Our August issue carried the announcement of the new ceiling price regulation CPR 151 for Appalachian hardwood lumber issued by the Office of Price Stabilization. Some of the provisions in the regulation are as follows:

The regulation requires that the lumber covered be graded in accordance with the 1952 "Rules for the Measurement and Inspection of Hardwood Lumber, Cypress, Veneers and Thin Lumber," published by the National Hardwood Lumber Association.

Pending the issuance of an applicable service regulation, lumber sold surfaced, resawn, and/or kiln-dried may include a charge not to exceed the highest amount added for such services in a sale to a purchaser of the same class made during the period of January 25, 1951, through February 24, 1951.

Lumber sold on specifications for special widths and/or lengths may include a charge not to exceed the highest amount added for such special sizes in a sale to a purchaser of the same class made during the period of January 25, 1951, through February 24, 1951.

The ceiling price of each of several items stated in the regulation for which dollars-and-cents ceiling prices are not shown is the highest price charged for each item to a purchaser of the same class made during the period of January 25, 1951 through February 24, 1951.

Provision is made for additions to ceiling prices for retail-type sales, mixed shipments, less than carload lot shipments, bundling, stenciling and antistain treatment. These additions are included in this tailored regulation in order to insure continuation if standard industry practices under price control.

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CODE . . .	
1 Bandmill	22 Sycamore
2 Resaw	23 Walnut
3 Circular Mill	24 Others
4 Planing Mill	25 Hemlock
5 Dry Kilns	26 Pine-White
6 Ash	27 Pine-Yellow
7 Basswood	28 Spruce
8 Beech	29 Oak Planking
9 Birch	30 Oak-Car Stock
10 Buckeye	31 Oak-S.S.E.
11 Butternut	32 Oak-Truck Body
12 Chestnut	33 Oak-Timbers
13 Cherry	34 Cross Ties
14 Gum-Black	35 Oak Flooring
15 Hickory	36 Maple Flooring
16 Locust	37 Beech Flooring
17 Maple-Hard	38 Dimension Semi Fin. & Fin.
18 Maple-Soft	39 Dimension Rough
19 Oak-Red	40 Stepping Pl.
20 Oak-White	41 Mouldings
21 Poplar	42 Others

Wood Puzzlers

This department is designed to help you find an answer to your production and sales problems. Send us the facts. Experience has shown that some other readers can help.

Hollow Core Panels—No. 60

We would like to find a source of supply for hollow core panels in small sizes, ¾ inch overall thickness, using ⅛ inch single ply Basswood or White Pine veneer, glued top and bottom to a mitred frame of ½ inch by ¾ inch stock fastened with one staple in each corner. We are also in search of inexpensive finished cabinets of Pine lumber. Blueprints will be furnished on request. Thank you very kindly for any help you can give us in locating a source for this material. (N. Y.)

Hobby Woods in Squares—No. 61

We are in the market for hobby woods, that is, various types of wood in squares and turning blocks for use by workmen in small hobby shops. We will appreciate any help you can give us in this matter. (Wash. D. C.)

Plywood Toilet Seat Blanks—No. 62

We are looking for a manufacturer of toilet seat blanks, made of plywood or from birch, beech, maple, or gum. These seats would have to be shaped and sanded. Thanks for any information you can send us. (Pa.)

School Furniture Hardware—No. 63

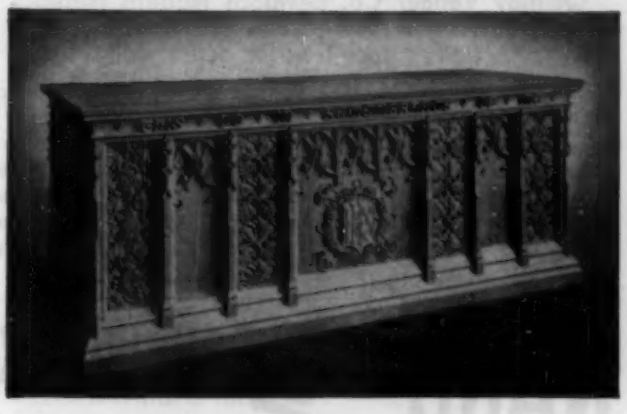
Can you suggest a possible source of supply for school furniture hardware? We are interested in braces for tablet arm chairs and chair desks. We are also looking for friction hinges, top leveling devices, and top reinforcing irons to prevent warping for an all wood tilt top desk. We would like to find a source of supply for this material as soon as possible and would appreciate any help you can give us. (Ohio)

Cherry or Maple Blocks—No. 64

We are in search of a source of supply for Cherry or Maple blocks to be used for backing on engraving plates. It is desirable that we find a manufacturer not more than 100 miles from New York City. Thank you very much for any information you can give us on this matter. (N. J.)

If you have any problem of wood utilization, or cannot find the kind of material or machine for your particular purpose, SEND IT IN to the editor and we will put it in the WOOD PUZZLERS section.

Where does ATLANTIC LUMBER go?



A beautifully hand carved Altar made exclusively from American White Oak. Installed in St. Peter's Anglican Church Town of Mount Royal, Montreal, Que. Created by The Valley City Manufacturing Co., Ltd., Dundas, Ontario.

In this series of advertisements an effort is being made to show the many varied uses of Atlantic hardwoods. Church interiors, including altars, organ consoles, interior trim, and pews are some of these uses.

Your Atlantic Man is familiar with hardwoods, and the peculiar adaptability of each in manufacturing various products. His experience and knowledge qualify him to be of great help to you in your choice of hardwoods. Be sure you get his advice.

THE ATLANTIC LUMBER CO.

88 BROAD STREET, BOSTON, 4, MASS.
1055 SENECA, BUFFALO 10, N. Y.

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Conditioning of Veener Logs

Quimby Veneer Co. develops modern methods for cutting veneers.

Early in World War II a singular and very heavy demand developed for high grade birch veneers of thin and uniform thickness, and in the 6, 7, and 8 ft. lengths. At that time this demand caught the hardwood industry rather flat, with a long history of dimension production behind it, but with rather little experience in long length veneer production, and with totally inadequate plant facilities and equipment necessary to obtain the required grade and yield from birch logs. This combination of circumstances and the absolute necessity of increasing production, led to revolution in the plants and layouts of the hardwood industry. New machinery, new methods, and adaptations of existing machinery and methods were quickly developed, and these, to such an extent that the hardwood industry soon had a rate of veneer production and a standard of quality of which they could be justly proud. As this development continued and production requirements were further increased, the one thought uppermost in the mind of any plant manager was to get the maximum footage and yield of face grade veneer in the longest length possible. Thus, the natural goal became the volume production of a standard size.

Probably no factor has as much influence on the production rates of long veneer, as the systems that are used to cook or steam logs before they are ready for the cutting lathe. This is especially true of a species like birch where, in order to obtain a sufficient yearly quantity it is necessary to take several grades in tree length form. As fast as these logs are received in the log yard, they are placed in water storage or sent directly to the vats before sawing into bolts or lathe length. The purpose of doing this is to eliminate insofar as possible the danger of block end checks. Furthermore, experience indicates that cooking long logs in hot water is the best all-around answer.

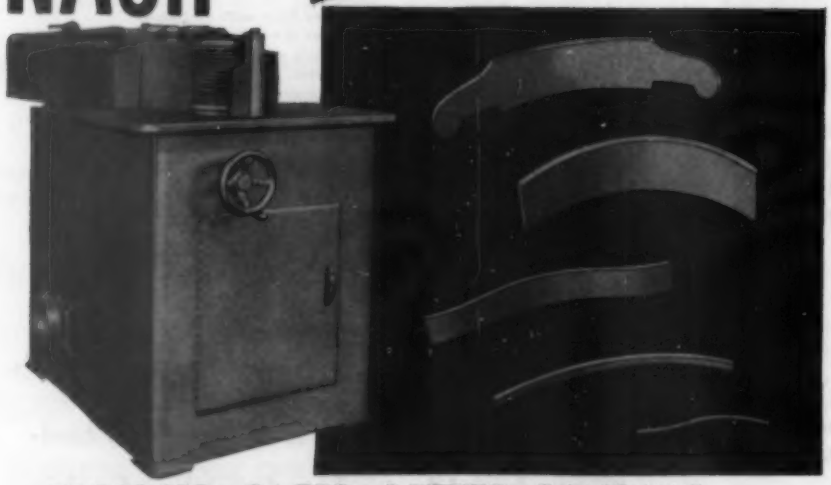
With a vat holding capacity of 140,000 board feet, our plant is currently following a four day schedule of cooking. Of these four days, in the summertime the logs are held 2½ to 3 days at 160°, then the temperature is increased the last 1 to 1½ days to 200° or slightly over. In the wintertime, with frozen logs and extreme temperatures, it is necessary to start the temperature rise a day early, with a schedule of two days at 160° and two days increasing to, and holding 200°.

This cooking schedule of the long logs produces a thoroughly saturated, thoroughly heated and very uniform log to cut. It is ready to be removed from the vats anytime that it is required, but it is not taken out more than fifteen or twenty minutes before the lathe is ready to use it.

Since this is a tree length log and since it has been cooked in the long length, it is a great deal easier to make the necessary bolts for 84" veneer. Most logs come with a 6" or 8" trim allowance on each end, so that after sawing there is little sign of block checking. Practically all of these blocks can be run on the lathe to the

(continued on page 54)

NASH No. 85 CHAIRBACK SANDER



SPEEDIER, SAFER, BETTER SANDING OF CONCAVE and CONVEX SURFACES

Like all Nash Sanders, the No. 85 justifies itself by cost savings, and this chairback sander will save on either small or large lots.

It is designed to sand curved or serpentine stock up to 1¼" thick and 6" high, at a variable rate from 18 to 55 feet per minute. Parallelism of stock is maintained and an excellent finish produced. Will sand curvatures of 5" on an arc of 30 degrees, and 8" on an arc of 90 degrees.

ELIMINATE SLOW MANUAL SANDING

The job of sanding over a large sanding drum is not only tedious but frequently causes injury to the operator. The Nash 85 eliminates this hazard and speeds production. The only set-up required on the Nash 85 is adjustment of feed rolls to thickness of stock, and regulating pressure for desired stock removal.

WRITE today for Bulletin giving complete description and specifications.

J. M. NASH COMPANY

Dept. 85, 2359 N. 30th Street, Milwaukee 10, Wisconsin

MANUFACTURERS OF IMPROVED MODERN WOODWORKING MACHINERY INCLUDING THE FAMOUS NASH No. 80 AUTOMATIC TURNING SANDER

Mr. Furniture Manufacturer!

Enlarge your production capacity without delay and without needless expensive investment in new equipment and facilities. Let GAMBLE BROTHERS furnish the fine wood parts you need to meet the increased demands of the furniture market.

Get exactly what you want, as you need it. GAMBLE BROTHERS' wood parts (turnings . . . core stock . . . plastic-faced materials) are designed to your specifications, fully or semi-machined, solid or laminated.

Take advantage of GAMBLE BROTHERS' more than fifty years' experience in successfully solving special wood stock problems for manufacturers of fine furniture and many other wood products.

Write Today!

YES . . . WE CAN FURNISH YOUR DEMAND FOR MAHOGANY!

Engineered Wood Parts in Southern and Appalachian Hardwoods, Walnut, or Mahogany.

GAMBLE BROTHERS, Inc.

Offices and Main Plant: Louisville 9, Ky.
DIMENSOWOOD Division: Montgomery, Ala.

GAMBLE BROTHERS GB GUARANTEED BOND INCORPORATED

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Seasoning

(continued from page 26)

are their requirements:

The size of these units will be dependent on the cost of the size of the actual kiln drying units, the production of stock that is to be reconditioned, the amount of stock to be placed in the unit for actual reconditioning, and the length of the reconditioning period.

Normally the reconditioning unit should hold one complete kiln charge in order to handle stock having been subjected to comparable kiln drying conditions and stresses. If the kilns all consisted of large double track units, it may then be practical to consider a unit holding just half the kiln charge. However, the actual size of the unit must be determined by a thorough investigation of the problem confronting each individual particular concern.

TIGHT DOORS are necessary in modern dry kilning.

Building construction for these special chambers must be tight to prevent loss of heat and vapor pressure. Slight holes in the eave joints or around the doors would lower the dry bulb reading and give unbalanced relative humidity within the unit.

Special consideration must be given to having a water-proofed building and well-insulated building to prevent heat loss and in an effort to guard against building deterioration, due to the rotting of wood timbers or the rusting of metal members.

With a well-constructed building, specific equipment is required to give controlled conditions.

Air circulation is required in order to control properly dry bulb conditions and prevent hot-spots from occurring near the ceiling or in those areas containing the heat coils (if necessary), or the steam spray lines.

As in a dry kiln the wet bulb or water-vapor pressure will be uniform and, therefore, the circulation is for dry bulb conditions alone.

Since this circulation is for proper distribution of dry bulb conditions and need not be used for actual drying of the lumber, the high volumes and velocities normally found in modern kilns are not required. Although circulation is required, its importance is much less than in kilns; therefore, it can be obtained either by relatively fewer and smaller fans, or can even be attained by proper design of the steam spray jets that emit steam to the units. The design and installation of jets for the purpose of circulation requires careful consideration and planning and the easiest approach is through the use of fans.

Control of water-vapor is the prime target of this unit and therefore, a means must be found of introducing and controlling this vapor in the conditioning unit. In steam-heated kilns, this required vapor is available in the form of steam. As long as the steam is controlled it is possible to control water-vapor.

Since low temperature saturated steam is required, so-as in the case of controlling this steam within dry kilns—here again it is necessary to control the steam or water-vapor as to volume and temperature, and to prevent liquid water or condensate gaining entrance into the conditioning room and upsetting the designed dry bulb settings.

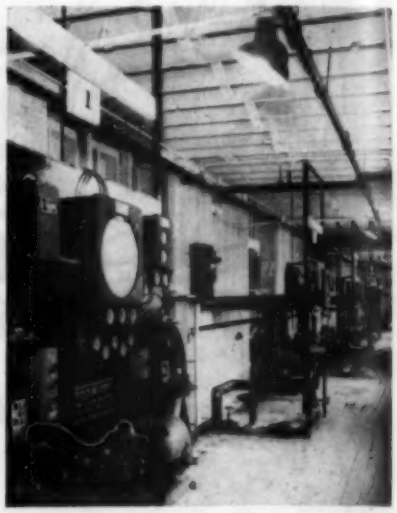
As in the case of regular dry kilns, the dry bulb must be controlled. Depending upon the species being handled, location and climatic areas of the plant, the desired wet and dry bulb settings, the requirements as to heating coils within such a unit must be analyzed for that particular installation.

Why Control Dry Bulb?

Some operators have found that by using 100 pound pressure steam through one spray line and 10 pound pressure steam through another spray, they can control both wet and dry bulbs. This is done by having a control instrument hooked so that the dry bulb control and set handles the high pressure, or 100 pound pressure steam, and the wet bulb control of the instrument is hooked to the 10 pound pressure steam. The dry bulb setting then controls the 100 pound pressure steam, which, although it has some water-vapor, has a surplus of heat. The wet bulb control then controls the low pressure steam which is relatively low in heat but high in water-vapor.

Independent Control

Control of the wet and dry bulbs independently is a prerequisite to proper reconditioning as some species will develop stain or drying defects if left uncontrolled with too high a reconditioning schedule, or length of time. These defects can manifest themselves primarily in reverse case-hardening and some types of stain.



CONTROL MECHANISM should be conveniently placed.

Controlling instruments are a worthy help to the operating personnel because they allow him to ask for a set of conditions, give him a record of actual conditions and, if properly installed, will attain the desired conditions. Normally ventilators and their automatic control will not be required in reconditioning. This, however, is true only when positive control on the wet and dry bulb is maintained and stock has been dried below 20%. However, a positive answer as to the necessity of vents and their control would again be dependent on other designed features of the reconditioning unit.

Reconditioning of lumber has to date been a prerequisite of properly seasoned lumber and it is with this in view that proper controls and equipment must be designed and installed to allow this controlled reconditioning with a minimum of maintenance and a maximum of production. Many problems surrounding the reconditioning can be solved by maintaining accurate records of the condition of the lumber prior to and during actual reconditioning, as well as a practical analysis of the actual operating conditions within the unit.

Subject Matter Committees-

The facts behind the organization of seven committees within FPRS whose function is to keep the most pressing technical needs of each field of forest products before the national, and 13 sectional program committees of FPRS.

A subject matter committee in forest products, according to Roy M. Carter, chairman of these committees in FPRS, is an operation where experts or others interested in a specific branch of forest products can meet or correspond to develop practical programs of action which the national Society, in turn, can help to carry out. Thus, a subject matter committee can guide the planning of meetings so that the current, needed technical information is stressed. By reviewing, as a body of experts, what has been said or developed in a praticular branch of research or production, such committees point up those areas which need more discussion by industry if technical progress is to be achieved.

CURTIS COMPANIES, INC., Clinton, Iowa, extend an invitation to FPRS members and friends to visit their plant during the Midwest Section meeting, October 9, 10.

UNIVERSITY OF LOUISVILLE, where the first meeting of the new FPRS Ohio Valley Section will take place, October 2.

Reality, Not Theory

Since its organization, in 1947, FPRS has been working toward the day when these groups of experts could actively cooperate in guiding the overall work of the Society toward improved technology and more efficient utilization of our resource.

150 Leaders Active

In addition to committee personnel numbering 50 experts, 100 others attended the various meetings held in Milwaukee. Following is a description of the lines of action taken by the committees:

Wood Composition Board

Committee members in attendance, Geo. Marra, Chairman; Forest Bell and Wayne Lewis. Some 15 other persons attended. Activity of the committee will cover molded shapes as well as board. Papers suggested for subsequent FPRS meetings include: A report on foreign manufactured boards; paper on merchandising and uses of board products; one on new processes of manufacture; and a paper comparing water and power requirements of the various processes.

Quality Control

In attendance were members Charles Latimer, Chairman; John Ritchie and Richard Calahan. The committee defined Quality control as "the maintenance of quality at the desired level by predicting future quality based on an analysis of recent quality performance." It also recommended that a technical session at the Society's seventh Annual Meeting at Memphis, June 15, 16, and 17, 1953, include: A nationally-known figure in the field to present the "Quality Control Idea" with emphasis on purpose, statistical tools, and management and economic aspects.

The committee also plans to develop and publish a "Guide to Quality Control" for the use of industry within the year. It will encourage other FPRS subject matter committees to develop

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standards and methods of measurement suitable for the adaption of quality control techniques.

Glues and Gluing

Fifty persons attended the meeting conducted by Alan Marra, Chairman. There was general concurrence on the need for good test methods in three categories: 1) Methods for improving sensitivity and reliability of observations on factors affecting bond quality. 2) Methods for translating strength observations into requirements of specific constructions. 3) Testing of finished constructions including long-term durability studies and correlation with short-term tests.

One of the problems discussed was the extraction and publication of data now buried in files of various laboratories. The committee hopes to collect and interpret such data for the benefit of industry.

Machining and Equipment

Thirty-one were present at this meeting chairmaned by L. A. Patronsky. Purpose of the committee will be to, 1) help in standardizing nomenclature of the industry; and 2) contribute worthy papers to FPRS meetings. A subcommittee on terminology, with emphasis on saws and knives, was appointed. A committee to develop a session on "Machining Problems" for the Memphis meeting was also appointed.

Wood-Drying

Raymond Rietz, Chairman, led discussion covering the following: FPRS cooperation with existing dry kiln clubs; How FPRS can help to establish a moisture content specification for suggested problems to be solved in the seasoning field by industry and research organizations.

Forest Products Education

Committee members F. Wangaard, Robert Zabel, Alex Panshin, L. A. Patronsky, and Chairman Robert Wellwood, plus 24 other persons, were present.

College curricula were reviewed and it was decided to continue studies toward specific suggestions and recommendations on curricula. The committee will make contact with various trade associations to stimulate interest in sponsoring apprentice training for undergraduate students in summer sessions.

Wood Finishing

The meeting was attended by members F. Thomson, R. Quigley, F. Thomas and Chairman R. E. Clatworthy. Visitors included K. Brown and P. DeSaix. The committee will include both Exterior or house painting and furniture finishing in its scope. A subcommittee is to review and develop a dictionary on finishing nomenclature, with the hope of its eventual standardization by A.S.A.

BRUCE specializes in quantity production of

WOOD PARTS AND DIMENSION

Send us your specifications or samples and we'll tell you what we can do for you in semi- or completely-machined stock from Southern Hardwoods.

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'53 Meeting

Memphis To Be Site Of FPRS 1953 Meeting

President Kenneth G. Chesley has announced that the Sixth Annual Meeting of the Society will be held at the Peabody Hotel, in Memphis, next June 15, 16 and 17. General Chairman is Moss B. Christian, Director of Research, Chicago Mill and Lumber Co., Tallulah, La. Program Chairman is R. D. Pauley, Manager Special Products Div., Weyerhaeuser Timber Co.

The job of handling the working committees and Memphis arrangements, is to be headed by 1953 Meet-

ing Chairman, W. Jeter Eason, Secretary-Treasurer of the Nickey Bros., Memphis. Many other local firms and executives will participate in the program, details about which will be reported in the near future.

Grand Rapids In 1954, West Coast In 1955

The Society's Executive Board also voted to hold the seventh and eigth national meetings in Grand Rapids Michigan and in the Pacific Northwest in the years 1954 and 1955 respectively.

Board States New Policy In Regard To Industry Shows

The FPRS Executive Board has interpreted the current policy of the Society to exclude the underwriting of future full-scale industry shows. By such action the Society does not wish to discourage, but rather encourage such shows for the benefit of the industry: FPRS may cooperate with responsible parties desiring to conduct Shows coincidental with and in the same locality as FPRS national meetings.

Regional News

FPRS Fall Meeting Open to Industry

You do not have to be a member of the Forest Products Research Society to attend any of its meetings ranging from Los Angeles to New York City, and from Georgia to Vancouver, B. C. All persons having an interest in the subject matter are invited to attend.

Midwest Annual Meeting Oct. 9 & 10

The Midwest Section will meet at the Hotel LaFayette, Clinton, Iowa, October 9 and 10, to discuss subjects of primary interest to the woodworking industries.

According to Program Chairman Ralph Casselman, Paine Lumber Co., Oshkosh, there will be an informal get-to-gether at the hotel on the evening of the 8th. Session I, the Business Meeting, Election of Officers and Luncheon are scheduled for Thursday A.M., and Sessions II and III in the afternoon and evening. Friday morning will see the plant tour through the Curtis Company operations; and concluding Session IV will be held in the afternoon. The following papers are confirmed: Glues and Gluing, by Alan Marra. Prefabrication, by Harold Fassbender, Harnischfeger Corp. Costs, by Charles Caugh, Richardson Bros., Sheboygan. Hot Press V. Cold Methods, by J. R. Green, Underwood Plywood & Veneer, Wausau, Wis. Use and Abuse of Lumber, by R. P. A. Johnson, U.S.F.P.L. New Kiln Drying Schedules, Ray Rietz, U.S.F.P.L.

Papers on Wood Aggregate Molding, Wood Working Equipment, Special Features of Millwork, and Lumber Handling are also Scheduled. A highlight paper will be presented by the Farley & Loetscher Co.

Great Lakes Section To Meet At Ann Arbor In November

Theme of the meeting, according to Program Chairman S. D. Pryce, John Widdicomb Co., will be, "Wooden Boxes, Crates and Pallets—their Materials and Methods."

Northeast Section, A.S.M.E. Woodworking Division To Hold Cooperative Meeting

"Wood in the Home" is the subject of the Fall Meeting scheduled at the

. . . For Permanent Wood Bonding in a Matter of Seconds!

Seen in the jig is an entire cabinet assembly to be glue-set electronically by THERMATRON in only 30 seconds. The bond is stronger than the wood itself by actual test! Hidden in the background is the 3 KW generator which masterminds this job.

*T. M. Reg. U. S. Pat. Off.

The saving to you in time, labor, floor space and expensive veneers is immeasurable . . . And the bonds produced are stronger than the wood itself. Costly clamps and clamping time are eliminated, and there are far less rejects.

THERMATRON supplies the complete installation, including generators and jigs, under one contract and one responsibility. The immediate production savings THERMATRON brings you are often more than the initial installation cost.

Write us today for complete details about your bonding problem . . . We'll be glad to offer guidance without obligation. And ask us for our instructive bulletin No. W-9.

HIGH FREQUENCY GENERATORS AND EQUIPMENT FOR ELECTRONIC GLUE DRYING • BENDING • EDGE GLUING • VENEER BONDING

Standard stock generators available from 500 Watt to 20 KW output, operating on 110 or 220 volt lines. Larger size generators up to 100 KW can be supplied for larger requirements.

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Hotel Statler, N.Y.C., December 4 and 5. Program as follows:

Thursday, 9:00 A.M., Registration. 10:00 A.M., Session I—Preparation of Surfaces. 1—Control of Sunken Glue Joints; 2—Cutting Knife Problems; 3—Contour Sanding; 4—Surface Sanding. 12:30 P.M., Official Luncheon. Guest Speaker, "Trends in House Construction." 2:45 P. M.—Session II, What's New in Surface Finishing? 1—The General Finishing Picture, Mr. Quigley, Lily Co.; 2—Alkyd Resins, DuPont Co.; 3—Lacquer Finishes, Sherwin, Williams Co.; 4—New Finishing Materials, Reliance Co.

Friday, 10:00 A. M., Session III—Home Construction. 1—Trends in Structural Practice; 2—New Aspects of Stock Millwork; 3—Use of Cut-Stock in Building Practice; 4—Getting the Most out of Flooring; 5—Pre-finished Wall Panels. 2:00 P.M.—Discussion Groups. 1 – Handling; 2—Seasoning; 3—Sawmilling; 4—Finishing.

New "Ohio Valley" Section To Meet Oct. 2

Acting Chairman, Robert Allen, of the National Casein Co., and Program Chairman Harold Moser, Vice President of Gamble Bros., Louisville, have announced the place an date of their first full-fledged meeting, as the University of Louisville on Thursday, October 2.

The meeting is open to all interested persons who wish to attend. $3.00 registration fee includes luncheon to be served at the University.

Following registration, the morning program on "New Developments in Wood-working Tools and Equipment," will be moderated by R. H. McMurtrie, President of the Huntingburg Furniture Co., Huntingburg, Indiana. Papers include: Trends in Use and Maintenance of Carbide Tools for Woodworkers, by R. D. Brooks, Firth-Sterling Steel & Carbide Co.; Adaptability of "Stellite" in the Woodworking Field, by a representative of the Deloro Smelting & Refining Co., Deloro, Ontario. Stellite is said to be a new alloy that exceeds the wearing qualities and cutting efficiency of conventional tools and in addition offers the convenience of easy-in-the-plant sharpening. Modern Veneer Splicers, by a representative of the Nickey Bros. This paper will cover both steam and electronic methods.

The meeting is expected to be honored by the presence of the new FPRS president, Kenneth Chesley, Director of Research, the Crosset Companies; the new North-Central Regional Board Member, Dr. J. Alfred Hall, Director of the U. S. Forest Products Laboratory, Madison Wis.; and an official of the Research Center of the University of Louisville.

Following luncheon there will be a brief business session and election of officers.

The afternoon Session will cover "Trends in Core-Stock Manufacture," C. D. Dosker, President of Gamble Bros., presiding. Sidney Anderson, Anderson Woodworking Co., Louisville will present a paper, "Economics of Lumber Core Manufacture." Dick Burkhardt, of Swain Lumber Industries will present, "Substitute Cores for Furniture Stock." Discussion by all present will follow the individual papers.

Other members who are participating in the program include: Bob Foot, of Chester B. Stem, New Albany, Ind., Chairman of Arrangements and Registration. Dick Stem, Co-Chairman of Arrangements. Embrey Rucker, Bentwood Products, Louisville, Arrangements. Dick Burkhardt, Membership Chairman; and Ralph Day, U. S. Forest Utilization Service, Columbus, Ohio, Chairman of the Nominating Committee.

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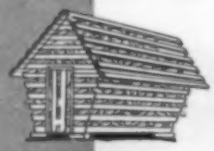
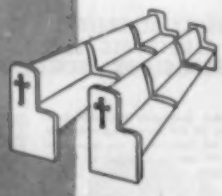


CONSTANT EXPOSURE to blizzards and rain, sub-zero cold and blazing hot sun, requires a glue with unusual resistance to extremes of weather. That's why manufacturers of corn cribs use Cellument.

UTILITARIAN PRODUCTS that are subject to constant hard usage require a glue that is durable and versatile. That's why makers of kitchen cabinets use Cellument throughout, and especially for gluing plastic laminates such as Formica to counter tops.

BEAUTY is more than skin deep and that's why makers of millwork, interior and exterior doors, church furniture, etc., use Cellument. They know that the uniform, high quality gluing results they get enhance the beauty of their products. *Investigate the advantages of using Cellument to glue your products.*



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Engineered for DOORS and other parts of TV CABINETS -STORE FIXTURES-FURNITURE that requires practically WARP PROOF plywood

Does BAL-CO-PLY cure all warpage troubles?

No! Not entirely, but BAL-CO-PLY comes closer to doing so than any other known method.

Some of us, in this organization have been making Plywood for better than 50 years. We should know some tricks and we do. Not tricks exactly, but methods of making Plywood with a lot of care and a different new technique that makes BAL-CO-PLY more suitable for jobs that require nearly WARP PROOF plywood.

THE COST:

The cost is a little more than any other hardwood plywood made by other reputable manufacturers. Minimum prices may be had when lots of 100 of size and kind are ordered and in quantities of truck and carload. Prices are higher on smaller orders that also require crating.

PEARL CITY PLYWOOD CORPORATION

Division of Jamestown Veneer and Plywood Corporation

Jamestown, N. Y.

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Veneers

(continued from page 44)

core without a sign of end checks in the veneer sheet.

To provide this steaming cycle, our system of vats consists of reinforced concrete tanks 20 ft. x 30 ft. x 14 ft. deep. A bridge crane with cross travel head, travels the length of the tanks. Between two of the middle tanks of the row, a carrier is provided for moving the logs indoors to the log saw. which does the required cutting to block length. To load these tanks, logs are secured in sling chains with approximately one thousand feet of logs to each sling and these are placed in the empty tanks. As each tank is required for use, water is pumped from it into an adiacent tank which has been recently filled with fresh logs. As soon as the water is removed from the tank, the bridge crane is able to pick up the sling of logs and place it on the saw carrier.

After the logs are conveyed into the mill and sawed, they are placed directly into a barking or roundup lathe. This roundup lathe is positioned below, but a little in front of, the cutting lathe. The purpose of this machine is to slab off the outside bark and waste and reduce the log to as near the proper size and shape as possible, before it proceeds to the cutting lathe. For our requirements we find that we benefit in the use of this machine by a tremendous increase in veneer production with hardly any loss of veneer yield. In fact, it boosts our lathe production to such an extent, that it is almost impossible for the barking lathe to round up the logs as fast as the production lathe can cut them into thin veneer. Another advantage this machine creates is to greatly reduce the labor involved in doing the final cleaning of the log before cutting. In our production, only two men are necessary to do the cleanup work for 30,000 board feet of log cutting.

As industry improvements continued during the war years, the development of the mechanical reeling system exerted great influence on the eventual overall production. It enabled one to visualize a very high cutting speed, because the veneer could be spooled on the reels at a rate of speed far in excess of the conventional methods of pulling the sheet up a clipper table, or transferring it onto a moving deck as it came from the lathe.

The reeling station could be placed at a convenient height on the outfeed side of the lathe on a track which, after the reel was completed, served as a runway to remove the loaded reel in a single motion. A rack of empty reels was provided just above this track and the reels positioned at the reeling station without lost time by the operators. At one end of this station a mechanical drive was provided, and in order to obtain an easier synchronization of the veneer reel to the log speed, the development of the electric clutch drive was started. This was controlled quickly and efficiently by a small rheostat knob and in the end it was this simple drive that took care of all the requirements of the various tensions necessary in winding different veneer thicknesses in such a satisfactory manner. It fitted in perfectly with the ability of the high speed lathe to get the utmost out of the birch log.

Along with this reeling system the steam engine drive became necessary. Though steam engines had been used by fir producers on the coast for many years, it was new to the hardwood industry but was now required for its power and flexibility. It could start easily in the cut, accelerate rapidly to high speed, and also make quick stops when a plug on the nose bar, or a break at the log occurred. It allowed the lathe operator to move the sheet of veneer slowly to the reeling station,

For big jobs and little jobs, know and insist upon the lustrous beauty of wood products finished to perfection . . . with Jewel *Natural* Garnet abrasive belts.

Toughened and "tempered" by a special, patented process, Jewel natural Garnet cutting edges are made to last longer . . . to cut cleaner, faster . . . to "fill" less quickly. Exclusive "Velvet Joints", featured on *all* Jewel Brand Belts, eliminate bumpy, uneven belt travel, assure satin-smooth finishes and better overall performance. Most important of all, Jewel natural Garnet abrasives help you make worthwhile production savings right from the start, do as good a job and better than many of the more expensive synthetic grits.

Write us direct or ask your jobber for up-to-the-minute information on the complete line of Jewel Garnet Belts for both portable and large stationary belt sanders. Abrasive Products, Inc., 553 Pearl Street, South Braintree 85, Mass.

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Jewel Brand COATED Abrasives

CUT COSTS!

Twin Threads Mean "Twice as fast"

You can identify TWIN-fast Reg. U. S. Pat. Off. by its parallel twin threads centered point relieved shank parallel side

Fasten wood to wood, plastic to wood, metal to wood twice as fast—and tighter!

Exclusive double thread of TWIN-fast Screws doubles the thread pitch . . . enters the material twice as far for each turn of the driver—*without extra effort*. Result—

. . . FASTER DRIVING
. . . LESS FATIGUE
. . . LOWER COSTS

Write for new TWIN-fast bulletin Reg. U. S. Pat. Off. to any of these firms:

American Screw Company, Willimantic, Conn.
Blake & Johnson Company, Waterville 48, Conn.
Central Screw Company
Chicago, Illinois, and Keene, New Hampshire
Continental Screw Company, New Bedford, Mass.
National Screw & Mfg. Co.
Cleveland, Ohio, and Los Angeles, Calif.
Stronghold Pacific Corp., Downey (Los Angeles), Calif.
Stronghold Screw Products, Inc., Chicago, Ill.
Southington Hardware Mfg. Co.
Southington, Conn.
Townsend Company, New Brighton, Penna.

Other TWIN-fast Reg. U. S. Pat. Off. features improve fastenings

Centered point helps quick start, balanced driving.
Relieved shank eliminates "wedge action" and splitting.
Parallel sides (no taper except at point) give greater thread contact, tighter holding—often allow using fewer or smaller screws.

TWIN-fast
Reg. U. S. Pat. Off.
Fast Driving . . . Cost Cutting Fasteners

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City_____ Zone____ State_____

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stop the lathe in the cut and then start up slowly when the reel was ready for the veneer. It could then increase its speed to whatever maximum the condition of the log, lathe, or thickness of veneer being cut, would permit. With proper preparation of the log, spindle speeds of 200 RPM are not unusual with a good lathe.

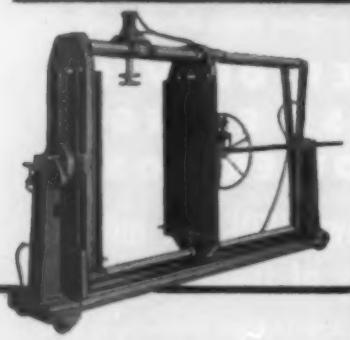
This arrangement of ample footage of well cooked logs, together with the high spindle RPM, and no loss of time in veneer handling, about tripled normal daily production rates. In fact, as the lathe and its accessories became more and more efficient it was soon apparent that it was taking longer to peel off the roundups from the log than it was to cut the log into veneer form on the reel.

This discrepancy was occasioned primarily by two things. One was the normal trouble in handling irregular sheets of veneer at even a *slow* rate of speed, and the other was, with the veneer reel in its proper position, that is, level with the knife and as near the knife carriage as possible, it was directly in the way of the man trying to reach and handle the roundup. A simple, but very effective answer to this problem can be found by mounting the cutting lathe on the second floor or at a considerable level above the roundup clipper table. In this way the lathe operator rounds up logs at a high RPM and lets the skirts and irregular sheets slide down a chute in a bunch to the roundup department. As soon then, as the operator has obtained a full length sheet, or one that is in suitable condition to reel, he stops the lathe, breaks the sheet, and starts reeling. While he is reeling the logs into veneer, the men on the roundup clipper table have time to rearrange and lay up the roundup veneers in a conventional manner, sending them on through the bunch clipper. Thus at a normal rate of work they can just about rearrange these roundups, while the operator completes the reeling of the log.

Another problem arising at the lathe due to a sizeable increase in production, is keeping the veneer knife in satisfactory shape for a full days production. The fact that nothing but well cooked logs are used, naturally exerts its influence on how long the knife will last, but we have found in regular production that it is more satisfactory to change the knife twice a day. In order to facilitate this problem we have come to the use of knife holders, instead of mounting the knife in the conventional manner on the knife carriage. In using these holders the knife is pre-set in the holder and then ground with a good grinder to a perfectly straight edge The same arrangement and treatment is also given to the nose bar. When the knife and holder are placed on the lathe, it is only necessary to run in the holding bolts with an air wrench, and the knife is ready to cut since there are no other adjustments available on it. Thus a complete change of knives—taking one off and putting a new one on—can be accomplished in only a few minutes.

As the preparation of the log for the lathe improved, and the ability of the machine to reduce the log to veneer form at tremendous rate of production increased, there arose an increasingly difficult problem of how to handle efficiently these large quantities of veneer as fast as they were cut. On the one hand, you had accomplished a big improvement in production and quality, and had reduced the labor in handling to a minimum. Yet on the other hand, when the reel of green veneer was completed, the veneer operation from then on followed previous patterns. The reels of green veneer were usually sent to a clipper of the semi-automatic type, which single clipped the sheets from each block cutting them to grade insofar as possible and at as high a rate of speed as possible.

Clamps

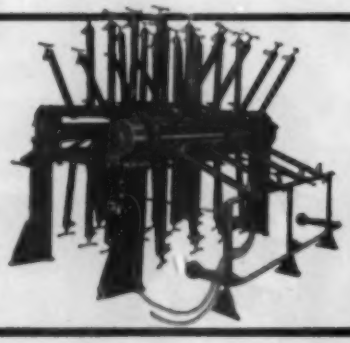


CASE CLAMPS

Massive tubular supports are mounted as fixed preloaded beams that will remain rigid and true, insuring accurate work under any load. No cast iron is used in any strain receiving member. Convenient controls and a powerful brake make operation easy and accurate. Write for Bulletin 11-J.

CLAMP CARRIERS

Black Clamp Carrieres are made in a practically unlimited range of sizes with respect to the number and width of sections and number, length and style of clamps. Carriers are made entirely of arc-welded and fabricated steel, providing an unbreakable frame and permitting flexibility of design. Write for Bulletin 11-K.



SASH AND FRAME CLAMPS

Black's two-way pneumatic clamps are mounted on a rigid, solid steel base with all controls conveniently grouped at the front. Valves and air supply lines are protected from damage by this base. Black clamps have been tested under production conditions, and proven to be fast, efficient and reliable. Write for Bulletin 11-M.

"If its gluing equipment—we have it"

THE BLACK BROTHERS CO., INC. 810 9th ST., MENDOTA, ILLINOIS

For all-purpose duty—

TAG MOISTURONIC METER

Here's the truly *all-purpose* moisture meter—Tag Model 8008—the meter that measures up to 150% wood moisture on a direct reading scale. It's dependable, of course—like all Tag and Weston instruments. It's as easy to operate as top-rank engineering intelligence has been able to make it. It weighs only about 10 pounds—has a sturdy, comfortable carrying strap. Fine quality in appearance as well as performance. Both battery and A-C types. Write today for Bulletin TT10 giving full description and technical details.

For utmost portability—

TAG MIDGET MOISTURE METER

The Tag Midget Moisture Meter brings new convenience to moisture testing. Extremely compact, it weighs less than 4 pounds—yet it provides true Weston-Tag accuracy and dependability. Operates on standard dry cell. Instantly indicates per cent moisture. Is calibrated for wood and plastic; can also be adapted for other materials. For details, write for Bulletin 1295. 45

TAG TAGLIABUE INSTRUMENTS DIVISION WESTON

WESTON ELECTRICAL INSTRUMENT CORPORATION

617 Frelinghuysen Avenue, Newark 5, New Jersey

"TAG" Automatic Controllers Record Temperature, Pressure

Pressure, vacuum or temperature can be automatically regulated and recorded with the Pneumatic Recorder-Controllers produced by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. These devices maintain conditions for which they are set by varying control line air pressure, which operates a diaphragm valve to regulate flow of fluid (gas, steam, liquid) to the equipment being controlled. At the same time, the instrument continuously records actual temperature or pressure on a circular chart.

Operating on an air supply of 18 p.s.i., TAG Recorder-Controllers handle temperatures between —100°F. and 1000°F., vacuum as great as 30" mercury, or pressures up to 7500 p.s.i.

"TAG" Glass Thermometers Provide Lasting Precision

Accurate general purpose and laboratory thermometers are supplied by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. Available armored or unarmored, these individually etched stem thermometers indicate temperatures as low as —150° or as high as 950°F. in the standard grade, and values as low as —30°F. or as high as 750°F. in the extreme precision grade. Limited range thermometers graduated to 1/100°C., for calorimeter use, are also standard.

In addition to individual instruments, matched sets of A.S.T.M. Testing Thermometers, with overlapping ranges spanning temperatures from —36°F. to 760°F., or —38 to 405°C., are available in convenient simulated leather cases.

Weston Metal Thermometers Combine Precision, Stamina

Accurate, reliable temperature indication is given by the all-metal Thermometers manufactured by Weston Electrical Instrument Corp., Newark 5, N. J. These sturdy instruments are designed for utmost legibility and are constructed for use under severe operating conditions.

Weston All-Metal Thermometers can be supplied with the stem projecting from the back or from the bottom, top or side at any angle. Stem lengths from 2½" to 24" are standard; stems as long as 72" are available. A 3" dia. head provides a scale 6" long. Temperatures as low as —100°F. or as high as 1000°F. can be indicated. The "Max-Min" type records highest or lowest temperature since resetting. Contact making type closes an electrical circuit at an easily set value. Special models are also available.

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NAMES and EVENTS

Personnel Changes

PERRY S. WOODBURY has been elected treasurer of The Diamond Match Co., South Walpole, Mass. WARD W. DEGROOT, who was secretary and treasurer, will continue as secretary.

PAUL M. DUNN, dean of forestry, Oregon State College, Corvallis, Ore., has been granted a year's leave of absence to help establish a forest school in Chile.

POSEY N. HOWELL, well known in forest management in Mississippi, became exceedingly ill in Wiggins, Miss. recently. He was forester and land agent for L. N. Dantzler Lumber Co. for many years and had been forestry consultant and public relations representative in that area.

L. E. BRADLEY has been appointed resident manager for the Eatonville Lumber Co., Eatonville, Wash.

M. F. JONES, dry kiln foreman at the Lewiston, Idaho plant of Potlatch Forests, Inc., has been transferred to the Potlatch plant as superintendent of manufacturing and shipping. CARL RASMUSSEN, former unstacker foreman at Lewiston, is now foreman of dry kilns, stacker and unstacker.

PERCY H. FUNK is named manager of the newly created central purchasing office of the Simpson Logging Co., Shelton, Wash. JAMES F. HILLER, former assistant purchasing agent, is now purchasing agent for the Shelton Working Circle, with GORDON CREASEY as assistant. LARRY WEHN is now assistant purchasing agent at the central purchasing office. FRED WELCH of Seattle, Wash., has been appointed chief industrial engineer.

RALPH G. DEMOISY has been named woods manager of the M and M Wood Working Company's Eureka, California plywood division. He has been technical director of the Washington Institute of Forest Products.

CLARENCE H. BURRAGE, formerly associated with the forestry division of the TVA, has been named manager of the reservoir and lands at the Philpott Dam in Virginia.

WILLIAM S. SWINGLER, U. S. Forest Service regional forester at Philadelphia, is named assistant chief in charge of cooperative forestry programs.

WILLIAM G. VAN BECKUM has been appointed director of research and development for The Pacific Lumber Co., Scotia, Cal. which has announced plans to continue its expanding program of development in utilization of redwood by-products.

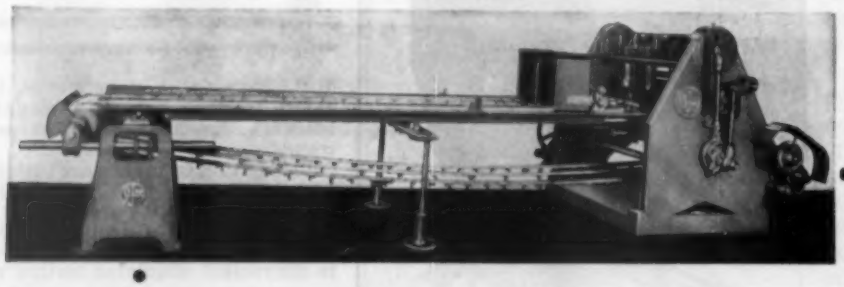
THOMAS REBER STEIN has been appointed resident manager of Rayonier, Inc.'s new $25 million purified wood cellulose plant currently under construction at Doctortown, Wayne County, Georgia.

CORYDON WAGNER, chairman of the board, National Lumber Manufacturers Association, Washington, D. C., has been named to represent the natural resources department on the board of directors of the Chamber of Commerce of the United States.

IRA HATFIELD has been named manager of the newly-established industrial preservatives section of the Monsanto Chemical Co., St. Louis, Mo.

Dean PAUL M. DUNN of the Oregon State College School of Forestry recently was granted a year's leave of absence during which he plans to fulfill a call from the University of Chile at Santiago to establish a forestry school in that institution.

O. V. SLAUGHTER has been ap-



ST. JOE HI-SPEED AUTOMATIC CRATE STAPLER

when **VARIETY** *pays off*

Are you continuously faced with the problem of turning out orders of a varied and complicated nature? Production men in the container field are making this type of work *pay-off* with ST. JOE stapling equipment.

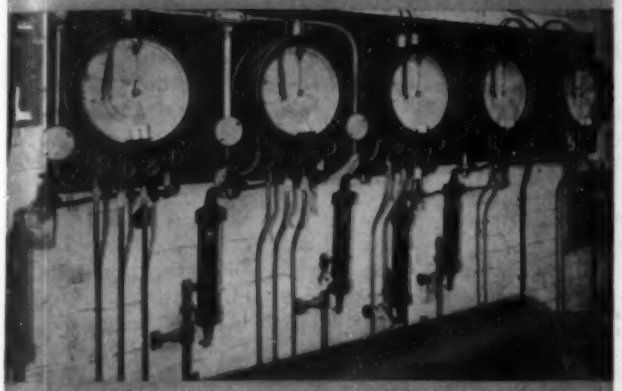
The ST. JOE Hi-Speed Crate Stapler (illustrated), the Selective Pattern Stapler and the Flatwork Stapler, are all built to produce these and many other designs.

It will pay you to check with St. Joe Machines, Inc. on your next container fastening problem. No Obligation.

ST. JOE MACHINES, Inc. ST. JOSEPH MICHIGAN

FOR MORE EFFICIENT

REVERSIBLE FAN KILNS...



Foxboro Controllers on reversible fan kilns, specified and installed by Standard Dry Kiln Co.

. . . Use a Controller that *KEEPS STEP*

Your reversible fan kiln can be worked to greater capacity, at lower cost, with a Foxboro Controller designed especially for this type of kiln. Moreover, drying quality will be much improved.

Combination Wet-and-Dry Bulb and second Dry Bulb used for this installation.

HERE'S HOW IT WORKS

This Foxboro Controller for Reversible Dry Kilns has *dual dry bulbs,* installed one on each side of the load. Both are connected to the same recording pen which automatically registers the temperature on the entering air side, regardless of fan direction. No need to adjust drying schedule to compensate for temperature drop through the load. Unique *duplex wet bulb control* automatically opens either spray valve or dampers as required, but never both at the same time . . . saves steam!

Preferred by most operators and furnished as standard by most kiln-builders, Foxboro Control is available for new or existing kilns of all types. For details, write The Foxboro Company, 139 Norfolk St., Foxboro, Mass., U.S.A.

FOXBORO AUTOMATIC KILN CONTROL

"A Sliver or a Slab?" How better can we tell you the scope of PAMUDO'S operations! This should be of real interest to you on your Wood Products problem. For Pine and Fir cut-stock; factory grade Pine; Fir Plywood in standard sizes or cut-to-size —it's PAMUDO! Industrial users of Plywood and lumber products, have, thru our 39 years of service, been assured of a dependable source of supply.

IF YOU HAVE A WOOD PRODUCTS PROBLEM, CALL

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GENERAL OFFICE • Direct Shipments . . .

Straight and Mixed Cars.
Lumber and Lumber products . Fir and Pine Mouldings, Doors, Plywood and Cut-Stock.
Stock Millwork—Cut-to-size Industrial Plywood.

TACOMA BUILDING, TACOMA 2, WASHINGTON

Warehouse stocks of
Plywood • Doors
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WAREHOUSES IN 5 PRINCIPAL CITIES

- St. Paul 4, Minnesota
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In Addition to Being Able to Supply Various Types of Cut to Size Dimension, We Can Supply the Following:

SOUTHERN, APPALACHIAN
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SOUTHERN YELLOW PINE
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pointed sales manager of hardwood lumber and hardwood dimension for the Mansfield Hardwood Lumber Co., Shreveport, La.

T. V. MONAHAN, assistant treasurer of Rohm & Hass Co., Philadelphia, Pa., has been appointed chief of the chemicals branch of the Rubber, Chemicals and Drugs Division, Office of Price Stabilization, Washington, D. C.

M. J. DAUBERT, former junior salesman for the Wood Conversion Co., St. Paul, Minn., has been appointed building products salesman in the Indianapolis, Indiana territory of that company.

C. S. WILLIAMS has been appointed plant manager at Nacogdoches, La., for the forest products division of Olin Industries, Inc. W. R. MCCROCKLIN was named manager at Mansfield, H. Y. HINSON at Waskom, and MENARD WATTS at the Shreveport treating plant. R. P. WISSING was appointed manager of pine sales M. A. KURZ manager of hardwood sales, H. W. MADDOX manager of treated materials sales, and W. P. CALLAHAN, Jr., traffic manager. R. E. HAMBURY was named regional controller at Shreveport, who in turn named L. J. MADDEN, Jr., as chief cost accountant. A. E. HADEN was appointed credit manager of the forest products division.

Expansions

WEYERHAEUSER TIMBER CO., Tacoma, Wash., has taken an option to sublease the wood alcohol plant at Springfield, Ore., which is now operated by the Oregon Wood Chemical Co.

UNITED STATES PLYWOOD CORP., New York, N. Y., has opened a new sales and distribution unit in Columbia, S. C. ALBERT M. HILL, JR. former sales representative at the company's branch in High Point, N. C., was named manager of the new unit.

Fires

HEDGES LUMBER & PLANING MILL Co., Milledgeville, Ga., suffered a fire loss July 12 consuming huge piles of dry lumber and several loaded freight cars. Damage was estimated at $200,000.

HOOD SAWMILL & LUMBER CO., McGaskill, Ark., lost its sawmill in a fire July 23. The loss was placed at $25,000.

SCOTT LUMBER CO., Henderson, Ky., lost part of its plant by fire July 19, the damage being in excess of $100,000. It is expected that the plant will be rebuilt immediately.

NOONER BROTHERS LUMBER CO., Hot Springs, Ark., suffered a fire loss in their sawmill July 17 causing $40,000 damage.

DAMASCUS LUMBER CO., Damascus, Ga., lost their planing mill, dry kiln, and 150,000 feet of lumber in a $20,000 fire July 16.

Associations

WILLIAM E. COOPER, Virginia Forests, Inc., was named chairman of the Council of State Forestry Association Executives at the organization's fourth annual meeting recently at Lufkin, Texas.

FOREST PRODUCTS REASEARCH SOCIETY Madison, Wis., will hold the fall meeting of its mid-west section in the Hotel LaFayette, Clinton, Iowa, October 9 and 10, 1952.

AMERICAN SOCIETY OF CIVIL ENGINEERS will conduct a symposium on "One Hundred Years of Engineering Progress with Wood" at its 100th anniversary meeting in Chicago, Ill., September 3 to 13, 1952. The opening session of the wood symposium will start at 9:15 A.M., September 11 at the Sherman Hotel. The second and third sessions on September 11 will be

VENEERED PANELS IN ONE OPERATION!

GET HIGHER PRODUCTION AND ECONOMICAL OPERATION

with a V B hot press

The automatic hydraulic Side and End Pressure Attachment features of the Single (1) and Double (2) Opening "VB" Hot Press enables the user to manufacture veneered panels in one operation. ★

The pressure attachments, as shown in the above photo, are fully automatic and operate in synchronization with the curing cycle. At a touch of the starting button the core stock, crossbands, face and back of the panel are made up and glued into finished panels. This type of manufacturing operation cuts the material costs and speeds up production. ★

Investigate this and the many other advantages of the "VB" Hot Presses for your plant or shop today. *Write for full details.* ★

V.Berthelsen ENGINEERING WORKS, INC.
P. O. BOX 1423 • LOCKPORT ROAD • JOLIET, ILLINOIS

There is a difference

. . . in carbide tipped saws!

All carbide tipped saws are NOT alike. No sir . . . MEYCO circular saws are in a class by themselves because the blade and tooth design have been engineered SPECIFICALLY for carbide teeth.

The W. F. Meyers Company has been making precision tools since 1888 and their experience in the field of diamond tooth saws and carbide cutting tools is extensive. This engineering know-how is what has made MEYCO carbide tipped circular tools accepted throughout American industry.

Tungsten carbide's high resistance to abrasion makes it especially adaptable to cutting materials that rapidly wear out the best steel tools. Carbide produces smoother, finer cuts of wood and sails through plastics and other synthetic materials that offer a high resistance to cutting by steel.

And when the saw is properly engineered for tungsten carbide it will run longer between grinds, give you more regrinds—you have a work saving, money saving tool that will increase production many fold. Write for descriptive catalog and price list No. 27.

W. F. MEYERS CO., INC., BEDFORD, INDIANA

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ADHESIVE PROBLEMS

Our Laboratories are anxious to work on adhesive problems others have failed to solve.

We have developed adhesives for

Plastic	Glass	Fibreglass
Fabric	Pliofilm	Plywood
Tinfoil	Brakes	Polythene
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and many other materials.

Write us if you have an adhesive problem. Samples will be submitted without charge.

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CORPORATION
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ESTABLISHED 1895

You Can Always Depend on

Permawood

Since 1918 the management and supervisory personnel have set high standards for PERMAWOOD. By patient employee training, careful timber selection and use of the finest machinery, we have made a product we are proud to label as PERMAWOOD Hardwood Plywood.

High-frequency Edge-Gluer used in producing finer lumber core for PERMAWOOD Hardwood Plywood.

We make PERMAWOOD panels in standard sizes, all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths from 30" to 48"; lengths from 36" to 96". Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.
Established in 1918
DARLINGTON, SOUTH CAROLINA

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held at the Sheraton Hotel, with the fourth and fifth sessions on September 12 being held at the Conrad Hilton Hotel.

Southern Plywood Manufacturers Association elected the following new officers at its 6th annual meeting: Vernon L. Toussaint, Perry County Plywood Corp., Beaumont, Miss., elected president. Tom John, Hasty Veneer Co., Maxton, N. C., elected vice-president. C. W. Dietterich, managing director. Phil Adams, U. S. Plywood Corp., Orangeburg, S. C., ex-officio member board of directors as past president.

Douglas Fir Plywood Association re-elected B. V. Hancock, sales manager of the Cascade Plywood Corp., Portland, Ore., president for the next year at its recent annual meeting. Re-elected, also, to another term as vice-president was Eberly Thompson, Portland, Ore., vice-president and director of the M and M Wood Working Co. Charles M. Duecy of Coos Bay, Ore., treasurer and general manager of the Menasha Plywood Corp., North Bend, Ore., was re-elected secretary, and J. P. Simpson of Tacoma, Wash., vice-president and general manager of Buffelen Mfg. Co., was re-elected treasurer. O. Harry Schrader, Jr. is managing director of the Association.

George H. Kubes, President of the American Box Co., with plants at Cleveland, Ohio, and Marion, S. C., was elected a Director of the Wirebound Box Manufacturers Association.

National Hardwood Lumber Association, Chicago, Ill., will hold its 55th Annual Convention in the Hotel Statler, Boston, Mass., September 22-25, 1952.

New Firms

Columbia Assembly Works Inc., New York, N. Y., has been granted a charter of incorporation to manufacture boxes and other wood products. Directors are: Claire S. Kaiser, Richard Roope, and Alfred Giuliani.

A & L Pole & Fence Co., Inc. Hempstead Township, N. Y., has been formed to manufacture sash, doors, and Venetian blinds. Directors are: Katherine Bernard, Louis Bernard and Henry E. Calderaio.

Southwestern Industrial Corp., Opelousas, La., has been organized to manufacture various kinds of wood products.

Acadian Lumber Co., Breaux Bridge, La., is a new lumber production concern with a capital stock listing of $40,000.

White Lake Lumber and Supply, Inc., Bethel, Sullivan County, N. Y., has been granted a charter of incorporation, listing capital stock of $10,000. Directors: Moe Newman, Jack A. Gershon and Arthur Newman, whose addresses were listed as Monticello, N. Y.

Miscellaneous

Louisiana State University, School of Forestry, Baton Rouge, is offering a course on southern bottomland hardwoods during the 1952-53 school year.

Twenty tracts of forestland adding up to 61,752 acres were designated officially as a "tree farm" Wednesday, August 6, at the high school athletic field at McArthur, Ohio, before a crowd of nearly 400 persons. The giant tree farm is managed and partly owned by The Baker Wood Preserving Company, a subsidiary of D. B. Frampton and Company, Columbus.

D. B. Frampton, in accepting the certificate awarded by the Ohio For-

The Right Glue for the Job...
FOR
HARDWOOD
PRODUCTS
Use NCC No. 9 Casein Glue
NCC No. 9 Casein Glue is unequaled for hardwood gluing—oak, beech, birch, maple. For edge gluing...for heavy veneering.
Joint work with hardwoods requires a specially "sturdy" glue. Take butcher blocks, for example, or firedoors, stair treads, outside doors and general millwork.
"NCC No. 9" is water resistant—easy on knives—fast setting—has long working life.
NCC No. 10 Joint Glue is another fast-setting adhesive for heavy veneering and joint work.
National Casein manufactures a complete line of casein glues, liquid ureas—with a variety of catalysts to fit your needs. Outline your gluing project, and we will recommend the adhesive to do it correctly. No cost or obligation.
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No Glue Problem—Casein or Resin—is too Little, too Big, or too Tough!
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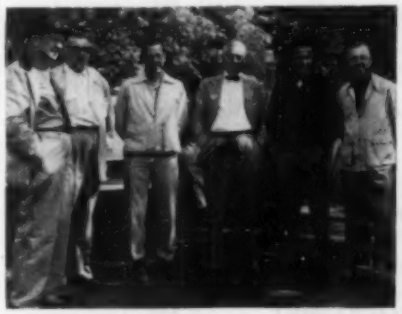
Post Office Box 91

Shreveport, Louisiana

Mills: Zwolle and Winnfield, Louisiana | Dimension Plant: Zwolle, Louisiana

estry Association, sponsor of the state's six-year-old tree growing program, echoed the need for permanence in the industry. "We can't survive jumping around," he said. "We must grow trees."

HARTZELL INDUSTRIES, INC., Piqua, Ohio, is the ower of the 63-acre tract near Fort Loramie, Ohio, where more than 200 sawmill and veneer operators, timber buyers, log producers, foresters and farm woodland owners attended an all-day forestry demonstration.



Here are a few of the members of the joint hardwood industry's forestry committee who attended the forestry demonstration on the Hartzell timber tract

The event was sponsored by the American Walnut Manufacturers Association, The Veneer Association, and the Ohio Forestry Association. It was climaxed by the presentation of a plaque designating the tract as Ohio Tree farm 251. This is the first industry-owned tree farm in Ohio.

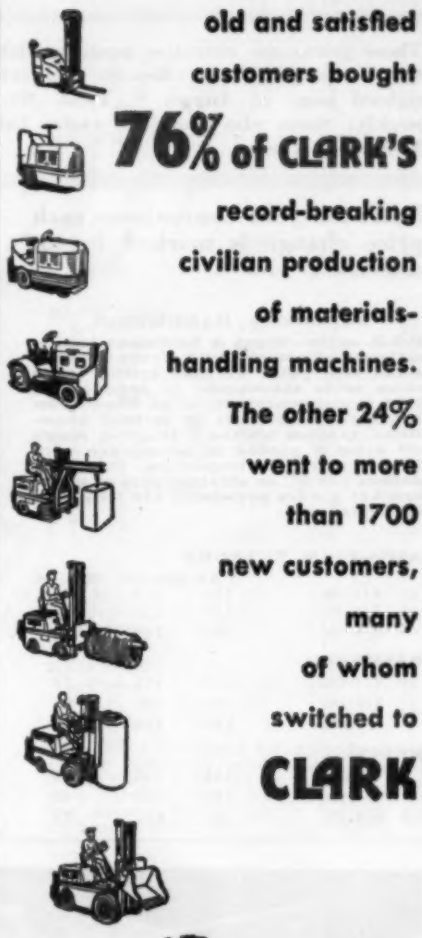
ALABAMA FOREST INDUSTRIES COMMITTEE has been formed with W. A. BOLCHER, Birmingham lumberman, as active head of the group. This advisory body of 20 men is one of several state and regional groups organized to provide advice and assistance to the American Forest Products Industries, Washington, D. C., in its national forest fire prevention and tree growing programs.

Deaths

MARTIN S. MCDONNELL, 46, vice president of the Cascade Lumber Co., Yakima, Wash., and president of the McDonnell Western Lumber Co., Inc., Chicago, Ill., died in his home in Evanston, Ill., July 5, 1952 of a heart attack.

FRANK JACOB SENSENBRENNER, 87, formerly chairman of the board of Kimberly-Clark Corp., Neenah, Wis., died July 22, 1952 in a hospital in that city.

In 1951, old and satisfied customers bought 76% of CLARK'S record-breaking civilian production of materials-handling machines. The other 24% went to more than 1700 new customers, many of whom switched to CLARK



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Markets

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of August 9, 1952. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

Note: For your convenience each price change is marked by an asterisk (*).

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on hand-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M', on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	155	110	62
6/4-in.	170	120	67
8/4-in.	180	140	70

BASSWOOD

4/4-in.	160	125	80
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in	125	100	55
6/4-in.	140	110	60
8/4-in.	167	127	72

CHERRY

Same as Appalachian

RED GUM—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	200	150	70
6/4-in.	230	170	75

RED GUM—QUARTERED

4/4-in.	220	165	75
6/4-in.	250	190	90
8/4-in.	260	200	95

SAP GUM—PLAIN

4/4-in.	100*	80	40*
6/4-in.	125	105	45
8/4-in.	160	140	

HACKBERRY

4/4-in.	110	90	60
6/4-in.	125	105	75
8/4-in.	135	110	75

SOFT MAPLE—WHAD

4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in	135	110	80

RED OAK—PLAIN

4/4-in.	170*	100*	62*
6/4-in.	190	135	
8/4-in.	200	140	

WHITE OAK—PLAIN

4/4-in.	180	115	62
6/4-in.	195	140	
8/4-in.	205	145	

PECAN

4/4-in.	110	90	40*
6/4-in.	130	110	60
8/4-in.	155	130	65

POPLAR—PLAIN

	FAS	S&S	No. 1C
4/4-in.	165	155	135
6/4-in.	185	175	140
8/4-in.	205	195	150

SYCAMORE—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	115	95	60
6/4-in.	125	105	60

TUPELO—PLAIN

TUF TEXTURE—DEEP SWAMP

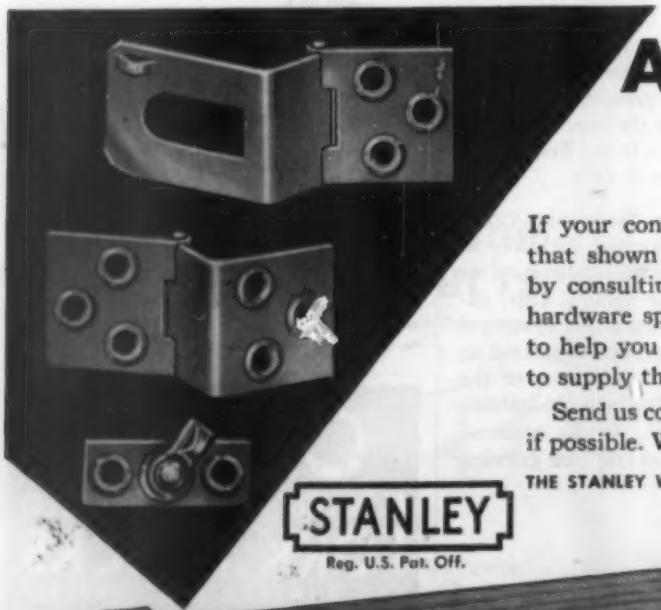
4/4-in.	100	80	40*
6/4-in.	125	105	45
8/4-in.	160	140	

WILLOW

4/4-in.	130*	110*	60
6/4-in.	142	122	67
8/4-in.	150	135	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of band-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried & graded in accordance with



Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

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NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

TOUGH ASH	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD				No. 2A
4/4-in.	180	170	130	80*
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH				No. 2C
4/4-in.	145	135	110	65*
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH				
4/4-in.	230*	220*	150*	80
6/4-in.	245*	235*	160*	85
8/4-in.	250*	240*	165*	90

BUCKEYE				
4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY				
4/4-in.	220	210	150	90
6/4-in.	240	230	170	95
8/4-in.	250	240	180	100

CHESTNUT	FAS	No. 1C	FAS WHND	1C & B WHND
4/4-in.	165	115	135	125
6/4-in.	170	120	140	130
8/4-in.	175	125	150	140

HICKORY	FAS	FIF	No. 1C	No. 2C
4/4-in.	125	115	78	53
6/4-in.	145	125	86	58
8/4-in.	165	155	90	60

HARD MAPLE				
4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE				
4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN			
4/4-in.	185	175	120
6/4-in.	200	190	135
8/4-in.	215	205	145

WHITE OAK—PLAIN			
4/4-in.	200	190	125
6/4-in.	220	210	145
8/4-in.	225	215	155

WHITE OAK—WHND	FAS	FIF	C & B	No. 1C
4/4-in.	115	105	90	85
6/4-in.	140	130	120	110
8/4-in.	150	140	125	115

YELLOW POPLAR—PLAIN	FAS	FIF	No. 1C	No. 2A
4/4-in.	210	200	135*	80*
6/4-in.	215*	205*	140*	93
8/4-in.	225*	215*	155*	..

POPLAR SQUARES	FAS	No. 1C & 5D
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED	FAS 6' & up	FIF 6' & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD			
4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	98

BEECH			
4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH			
4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM			
4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM			
4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE			
4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82

SOFT MAPLE			
4/4-in.	155	120	72
6/4-in.	170	130	82
8/4-in.	185	140	90

RED OAK			
4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	85

*Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

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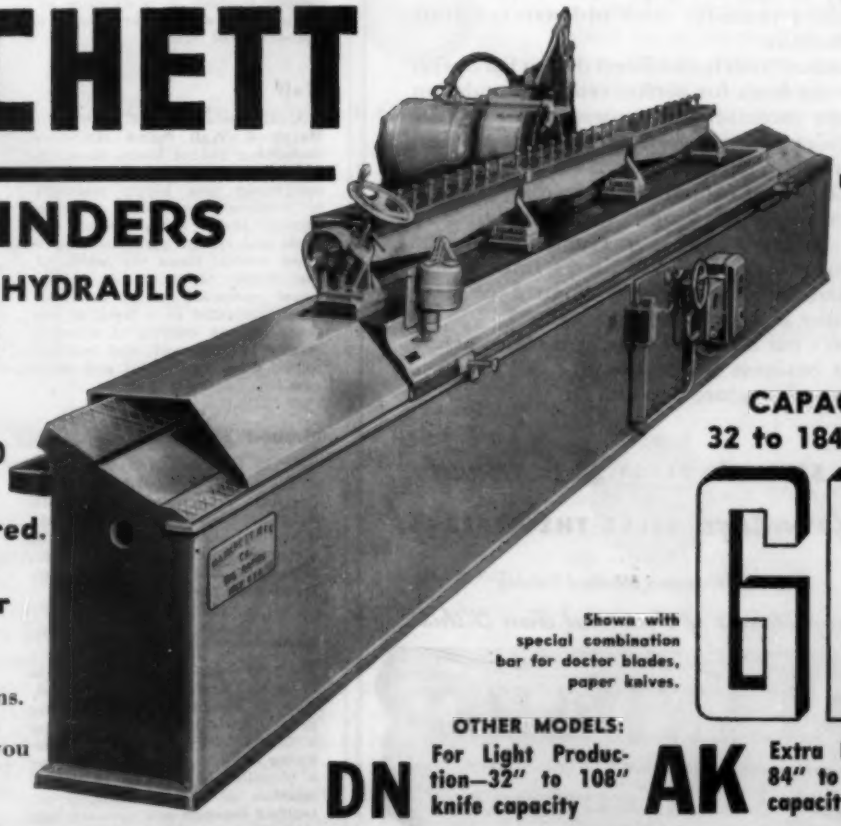

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Patent Digest

by Royden C. Rinker

Wood Particles

S. Glaubert. U. S. 2,587,992, March 4. Dry process for agglomerating wood particles containing lignin, comprising adding a solution of weak acid; then adding a strong acid and subjecting to heat and pressure.

Woodworking

E. J. Gregory. U. S. 2,587,994, March 4. The combination with a portable woodworking machine having a support base, a drive shaft, and a rabbeting tool, of a guide and routing block having one face abutting one end of the routing base.

Building Structure

C. A. Ajne. U. S. 2,587,807, March 4. Wall structure comprising abutting rectangular panels having grooves in the edges, and a wooden skeleton connecting the panels together in edge-to-edge relation to form an unbroken surface, said panels being joined to the skeleton by coupling bars.

Molding

C. Uschmann (to Cascades Plywood Corp.) U. S. 2,587,930, March 4. Extruding a synthetic lumber product of a mixture of compressed woody fibers and a heat-activated binder.

Wall

A. Elmendorf. U. S. 2,587,985, March 4. Wall frame structure containing spaced studs, faces of which are exposed to provide a continuous face highly resistant to rupture, comprising securing furring strips crosswise of the studs and spaced apart from each other several times the width of the strips; creating a flexible panel composed of a layer of wood laminated to a layer of paper having a coating of adhesive on the back thereof, and bonding to the frame with heat and pressure.

Method of Gluing

E. E. Bergey (to National Casein Co.), U. S. 2,591,771, Apr. 8. Coating wooden members with aqueous urea-formaldehyde resin containing an ammonium salt of a strong acid and an alkaline earth phosphate and curing with high frequency energy.

Laminated Tubing

P. R. Goldman and R. Alt (to Plymold Corp.), U. S. 2,591,928, Apr. 8. Apparatus for fabricating plural-plywood tubing comprising a frame, delivering sections defining a work path and presenting a plurality of stations in spaced relation, a forming mandrel extending through and between said stations, revolvable head means at the initial stations for spirally wrapping veneer strips in tubular relation about the mandrel in different directions at different stations, work-engaging means for progressing the tubular work axially along the mandrel, veneer strip applying means at a succeeding station for supplying a veneer strip longitudinally, further spiral wrapping at a subsequent station and drive mechanism for the wrapping and the progressing means coordinated to present the resultant tubing.

Woven Wood Articles

H. H. Thompson (to Weavewood, Inc.). U. S. 2,592,080, Apr. 8. Molding sheet material into dish-like articles free from wrinkles at the curved portions comprising providing a plurality of wood strips impregnated with heat-convertible resin, weaving strips into a mat having the interwoven strips movable longitudinally and transversely relative to each other, providing a resin-impregnated creped paper filler sheet, assembling the mat and filler sheet, imparting a dish-like form to the mat and molding under heat and pressure.

Gluing Machine

R. F. Onsrud (to Onsrud Machine Works, Inc.), U. S. 2,593,691, Apr. 22. Gluing machine comprising a rotatable table having a pair of horizontal carrier platens disposed one on each side of the table, a clamping platen disposed above each platen and mounted for vertical movement toward and away from the platen, pneumatic power means arranged to raise and lower each platen and apply pressure thereto, pneumatic clamp means arranged to act between carrier and clamping platens, means to rotate the table intermittently in one-half revolution increments of angular movement and power actuating means.

Sulfite Liquor

H. Ehrensperger (to St. Lawrence Paper Mills Co.), U. S. 2,594,302, Apr. 29. Recovery of nitrogen-containing from ligneous liquors by treating with a quaternary ammonium base or salt thereof.

Match Splints

F. Schafer (to Bell Machine Co.), U. S. 2,594,351, Apr. 29. Cutting slits in a block of wood, cutting similar slits in the face and slicing to obtain a plurality of splints.

Sawing Machine

F. Griffith, U. S. 2,595,073, Apr 29. Log coping machine comprising an open oblong frame, and a sawing unit for cutting a half round notch in a log.

Wood Impregnation

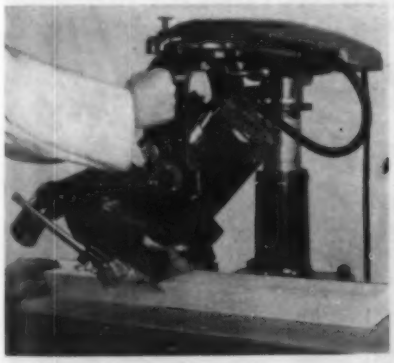
S. T. Henriksson (to Bolidens Gruvaktiebolag), U. S. 2,595,256, May 6. Forcing a liquid into wood under pressure, reducing pressure, progressively increasing the time for a cycle of high and low pressure for a number of cycles.

New and Improved Products

Glue Block Machine

The new Oliver No. 837 Glue Block Machine is designed to mount on any make of band saw 24 inches or larger. It can also be mounted on a special Oliver 18-inch Band Saw arranged with a 1 H. P., 1200 RPM, motor and non-tilting table.

When cutting glue blocks of the smaller cross sections at the high rate of 100 strokes per minute, it is possible to produce 95,000 glue blocks per eight hour day. For complete information, write to the Oliver Machinery Co., Dept. W, Grand Rapids, Mich.



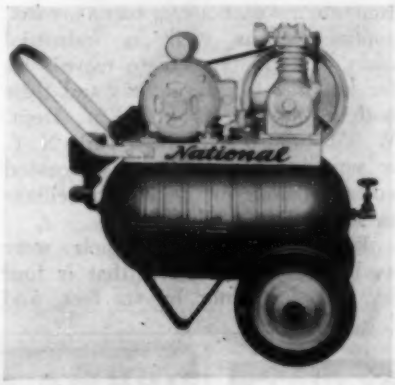
Receding Arm Saw

DeWalt Inc., has recently started production of a new receding arm saw which features the installation of a specially designed, direct drive motor. DeWalt reports that with this latest development in motor engineering there is a minimum of motor case interference, permitting maximum depth of cut (up to 4½" with a 14" blade). This is achieved by squaring the bottom of the motor case, thus adding inches to the effective blade diameter. For further details, contact your local DeWalt dealer, or write direct to DeWalt Inc., Dept. W, Lancaster, Pa.

New Hardwood Plywood Panel

A new checkerboard - patterned hardwood plywood panel is currently being offered by United States Plywood Corp., Dept. W, 55 W. 44th St., New York 18, N. Y.

The checkerboard effect on the plywood panels is achieved by using 16-in. squares of dark African ribbon stripe mahogany and lighter Korina. The grain of each square, it was stated, is set at right angle to the next, creating the unusual effect. The new checkerboard plywood is available in 48 by 96-inch panels of five-ply construction.



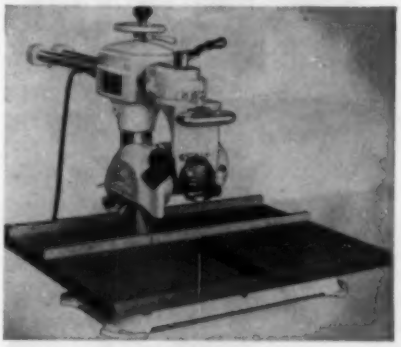
Pressure Regulated Compressor

National Tool & Equipment Co., Dept. W, 1807 W. Lake St., Chicago, announces the manufacture of a new Model B-100 piston type portable light weight (125 pounds crated) automatic pressure regulated air compressor. It has a 12 gallon stainless steel air receiver V-belt driven ½ H. P. 115/230 volt, single phase, 1725 RPM heavy duty ball bearing capacitor motor with an 8-ft. plug-in extension cord. It is equipped with a pressure gauge, safety valve, drain cock and semi-pneumatic 2 x 10" rubber tired roller bearing steel wheels.

Waste Wood Power Generation

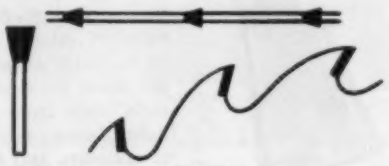
The lumber industry's dream of generating enough power from waste wood to run its sawmills came a lot closer to reality with the announcement that combustion efficiencies of 92.5 to 99 percent have been obtained with a sawdust-fed gas turbine developed at the Oregon Forest Products Laboratory of Corvallis, Ore.

Heat release rates up to 900,000 Btu per square foot-hour based on grate area and 200,000 Btu per cubic foot-hour based on furnace volume were realized in the laboratory furnace, George H. Atherton and Stanley E. Corder, mechanical engineers with the laboratory, said. Their joint paper was presented at the spring meeting of the American Society of Mechanical Engineers at the University of Washington, Dept. W, Seattle, Wash.



Radial Arm Saw

Consolidated Machinery and Supply Co. has changed the design of the Comet Cub, their light-weight, multi-purpose radial arm saw. This change widens the work table by 8 inches, increasing the rip capacity of the machine to 24 inches, and allowing the user to rip to the center of panels up to four feet wide. The table has been bored out so the machine may be used as a shaper without any additional attachments. A redesigned shaper fence, to fit the new wide table is provided as an accessory but a home-made fence, fastened by "C" clamps, will also serve. For further information, write to the manufacturers at Dept. W, 2029 Santa Fe Ave., Los Angeles 21, Cal.



Carbide Tipped Circular Saws

A complete line of standard type and 'on-the-job' engineered and precision fabricated tungsten carbide tipped circular saws, 6-in. to 36-in. in diameter, is announced by Rockwell Manufacturing Co., Dept. W, Pittsburgh, Pa.

The Rockwell Carbide-Tipped saw blades are designed to provide: cut materials which are difficult to cut with a saw of ordinary steel; cut all wood, fiber boards, hardboards, laminates, plastics and highly abrasive materials: cut joints in wood ready for gluing. They are declared to last 25 to 100 times longer before resharpening

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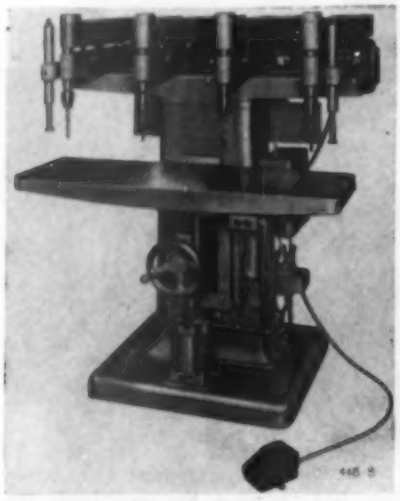
and to eliminate frequent blade changes.

As indicated by the sketch above, Rockwell tungsten carbide cutting tips are chisel faced—cut on both sides of the kerf—taper back from the cutting edges and are without set.



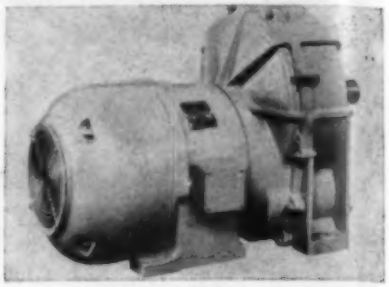
Multiple Spindle Borer

Outstanding advantages of the recently announced ECCo No. 448 Multiple Spindle Borer are said to be: versatility, quiet operation (no gears), easy adjustment, rigidity, accuracy, high production efficiency, and automatic (air-operated) table feed cycle. The standard machine has four spindles (which may be set as close as 2¾" center-to-center) and two spring holddowns, each positionable forward, backward, or sideways as desired on two T-slot rails. Individual belted motor drive on each spindle can be turned on or left idle independently as needed. Machine can also be set up for single or series operation using multiple position work fixtures. Write for full particulars to Ekstrom, Carlson & Co., Dept. W-7 1409 Railroad Ave., Rockford, Ill.

Plastic-Coated Colored Panels

Because of increased demands for more panelboard sizes, which will facilitate installations for home owners, contractors, as well as industrial users, and thereby create more sales for building supply dealers and their outlets, the Barclay Mfg. Co., Dept. W, 385 Gerard Ave., New York, N. Y. is now producing its plastic-coated colored panels for walls and ceilings in seven different lengths.

Previously, Barclay panels were available in three sizes, that is four by four feet, four by six feet, and four by eight feet, in a wide variety of colors and three designs; solidtone, streamline and tile pattern. Now these panels are being made in four additional sizes; four by five feet; four by seven feet; four by ten feet; and four by twelve feet.



Geared Electric Drive

Sterling Electric Motors, Inc. Dept. W, 5401 Anaheim, Telegraph Road, Los Angeles 22, Cal., announces the addition of larger totally enclosed fan-cooled geared motors to their line of Slo-Speed electric power drives.

These new units are double reduction and available with Class 1, 2 and 3 gears in frame size 364/365, and AGMA speed 155 RPM and slower in ratings from 5 to 25 H. P. In this drive bearings are mounted in the outer

WEAR 5 TO 10 TIMES LONGER
because they're job-fitted

In woodworking, coated fabric gloves made to fit the operation have widely replaced old-type canvas, leather and unlined rubber gloves. In a typical test, handling rough logs and sawing and stacking lumber, a job-fitted glove coated with permanently flexible, abrasion-resisting plastic, wore 30 days compared with 2 days' wear from canvas and double-palm gloves. Also eliminated hazard of splinters and kept hands dry.

Reinforced Neoprene (NEOX) Coated: Extremely resistant to chemical action as well as cutting and abrasion.

Natural Rubber-Coated, Sure-Gripping Wet or Dry: Ideal for handling lumber, also all slippery materials. Very cut-resistant.

Flexible Plastic Coated: Maximum resistance to abrasion. Special coating remains flexible, won't crack or peel.

Free Test Offer: Employers, send brief description, on business letterhead, of your operation and materials handled. Without charge, we will forward samples of type gloves we recommend, for on-the-job test.

Edmont JOB-FITTED GLOVES

Edmont Manufacturing Company
1268 Walnut Street, Coshocton, Ohio
World's largest maker of coated industrial gloves

LUMBER MANUFACTURERS INC.
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custom kiln drying
to meet the exacting specifications for Aircraft, Technical and all Regular uses where less waste, costs and quality drying are duly considered.

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"SPECIFICATION" CUSTOM KILN DRYING

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Resawing, Surfacing, Pattern Items, Smooth-end trim

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LUMBER MANUFACTURERS INC.
Cable Address: Lumac
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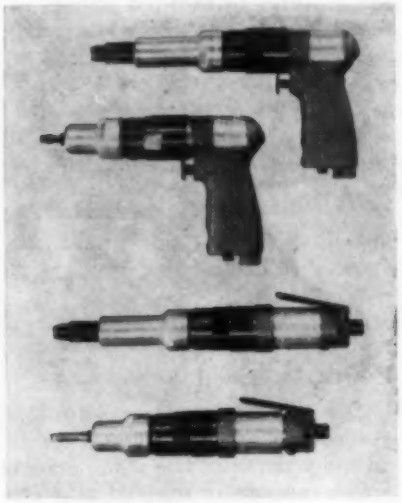
2536 S.E. STEELE ST. PORTLAND 2, OREGON

walls of the gear case and gears are mounted between these widely spaced bearings, permitting use of offset shafts and providing permanent bearing and gear alignment in uniform distribution of load.

Saw Sharpener and Setter

A new machine for the sharpening and setting of circular saws as well as sharpening planer and jointer knives, hand plane irons, wood chisels and other cutting tools, has just been announced by the Belsaw Machinery Co., Dept. W, 315 Westport Road, Kansas City, Mo.

Named the "Sharp-Smith", it will joint, gum, bevel grind and set all popular types of circular saws from 4-in to 48-in. in diameter. In addition, it will sharpen planer and jointer knives up to 24-in. in length.



Air-Driven Screwdrivers

A new series of midget-size air driven screwdrivers and nut-setters has been announced by the Master Pneumatic Tool Co., Inc., Dept. W, Orwell, Ohio.

Used for driving nuts, bolts and screws in all types of assembly and sub-assembly operations, this new series of air tools is rated for driving screws up to size #12, and for nuts and bolts up to ¼-in. diameter bolt size. Three types of clutch mechanisms are adaptable to three different free speeds. They are 580, 1200 and 2400 RPMs.

The tools can be fitted with either pistol or lever type throttle handles, and have spindle adapters for both screwdriver bits and nut socket adapters, providing a total of thirty-six different models.

Kaneelhart—A Tropical Wood

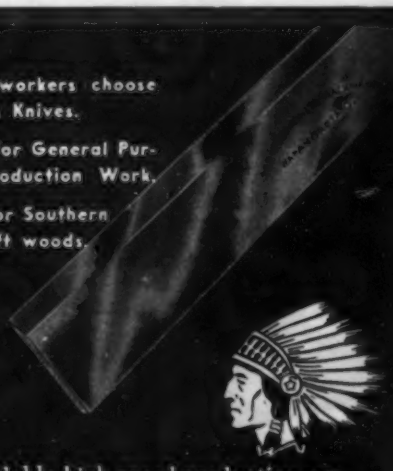
A tropical hardwood almost five times stronger than White Oak, the most commonly used North American hardwood, has been uncovered during a five-year tropical wood testing program at the Yale School of Forestry, Dept. W, New Haven, Conn. The wood, hitherto untested scientifically and virtually unknown outside its native habitat, comes from a medium-sized tree known as Kaneelhart.

Tests at Yale showed it to be of the strongest and heaviest woods in the

Quality Woodworkers choose WAPAKONETA Knives.

"BIG CHIEF" for General Purpose High Production Work.

"MOHAWK" for Southern and similar soft woods.



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We can manufacture kilns to your specifications.

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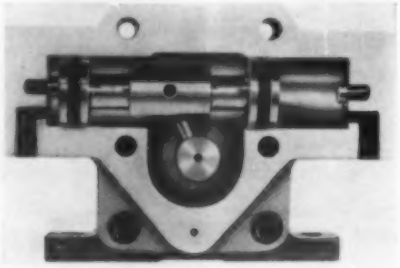
world, according to Frederick F. Wangaard, Associate Professor of Forest Products. In addition to being five times stronger than White Oak it is nearly half as strong as aluminum, although it weighs only a third as much as the metal.

Air-Control Valve

Announcement of a new automatic air-control valve, for use with air suction systems and dust collectors on units such as wood jointers, planers, sanders, table saws, and other similar equipment, is made by the Kindt-Collins Co., Dept. W, 12653 Elmwood Ave., Cleveland 11, Ohio.

Several exclusive features are claimed by the manufacturer for this new product to be known as the Ventomatic Air Control Valve (patent applied for). Extremely simple in design, this unit can be fitted to any machine, pipe or installation within its scope. The valve opens and closes automatically as the machine switch is turned on and off. This prevents the continual exhausting of warm air from the room when the machine is not operating, and effects important heating economies. Sizes of these valves are available to fit 3", 4", 5", 6", 7" and 8" ducts.



Power Operated Valve

The POV Power Operated Valve, available in six sizes, suitable for air, oil and water operation with option of finger, cam, toe or solenoid pilot controls, is now available.

These power operated valves are designed to serve a variety of purposes where hand or foot operated valves cannot be used, such as: Remote control, where the operation must be a distance from the valve; Automatic operation, where the movement of some part of a mechanism must start the valve to create another movement; Reciprocating service, where the cylinder must move continuously back and forth.

Complete information is detailed in Bulletin 1000 which will be sent upon request by writing Ledeen Mfg. Co., Dept. W, 1600 So. San Pedro St., Los Angeles 15, Cal.

No-Clamp Synthetic Adhesive

A synthetic adhesive that completely eliminates the use of clamps or presses in the cementing of laminated plastics and other building materials has been developed for industrial use by Adhesive Products Corp., Dept. W, 1660 Boone Ave., New York 60, N. Y.

The new cement, marketed under the trade-name "Stix," is said to be both waterproof and quick-drying. Its adhesive qualities, say company engineers, are superior to any other cement now available for such use. Stix is resistant to excessive heat and cold as well as most oils, acids, alkalis and water. It is flexible, yet shockproof. As Stix "cures" after application, it becomes stronger with age.

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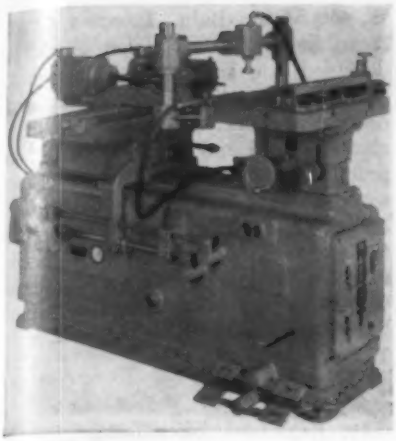


Boring Machine

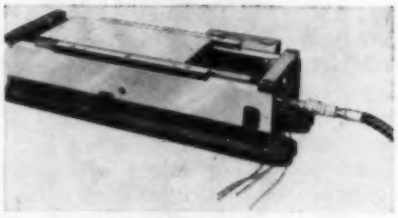
The Style KH is a new hydraulic feed boring machine with a single motorized spindle with provision for attaching multiple spindle cluster units manufactured by the B. M. Root Co., Dept. W, York, Pa.

The machine is essentially for the woodworking trade for boring dowel, screw and nail holes in furniture parts, toys, cabinets and kindred products requiring holes in the fabrication of the article. The KH employs a stepless type of hydraulic feed which can be set at any feed up to 100 strokes per minute.

Wood Stains in 350 Colors

The wood in tomorrow's tables, chairs, bookshelves, and other pieces of furniture may come in a galaxy of colors ranging from deep red to pale purple. This possibility arose when the Martin-Senour Co., Dept. W, 2520 S. Quarry St., Chicago, introduced scores of new wood stain colors to replace the traditional blondes and browns of mahogany and walnut.

The new color stain program is keyed to the company's Nu-Hue custom color system. In addition to the standard browns and tans, it provides a complete variety of reds, pinks, blues, greens, violets, and other new colors.



Work Feeder

A new two-station electrically controlled, air powered work feeder, the "Transfeed" Work Feeder, is announced by The Bellows Co., Dept. W, 230 West Market St., Akron 9, Ohio.

It consists of a movable, mild steel table top 11/16-in. thick by 5¼-in. wide by 12-in. long, which is guided between hardened and ground dovetail ways. Power for the transverse motion of the table top is supplied by a special Bellows BEM 5-60 Air Motor with a built-in Electroaire Valve that is guaranteed against burn-out, yet provides instantaneous power control.

The "Transfeed" Work Feeder has a 6-in. transverse positioning stroke, which allows the operator to load and unload work at one end of the table while the machining operation is taking place at the other end—thus doubling machine tool production.

Marking & Printing Machine

The Rejafix marking and printing machines are now distributed in the United States by Popper & Sons, Inc., Dept. W, 300 Fourth Ave., New York City.

These machines will, by use of metal types or cuts—mark, print or decorate any material such as glass, plastics, ceramics, wood, rubber, textiles, metal, or paper. This is done irrespective of the shape of the item. Rubber cuts or types must be used to print on flat metal surfaces, but this

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Our three mills are located in the Mississippi, Atchafalaya and Red River basins of Louisiana which produce the finest Willow in America.

Large and well assorted stocks of this fine willow are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 4/4" to 8/4" or include in mixed cars with Port Barre white ash and other Southern Hardwoods. Prompt attention will be given to all inquiries.

The Port Barre Lumber Industries, Inc.

Manufacturers of Southern Hardwoods

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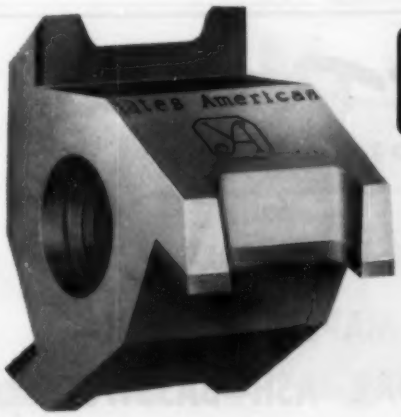

YATES-AMERICAN Tungsten Carbide Tipped Solid Cutters give fast cutting, accurate pattern and maximum cutter life on "hard-to-cut" materials. The correct grade of tungsten carbide is chosen for the material being cut. The tip is cast to the approximate pattern and then fused to a TOOL STEEL body. The cutter is then precision ground and tested.

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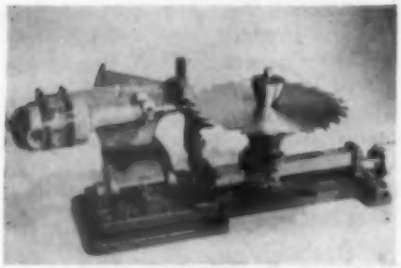
does not, with Rejafix machines, impair the clarity of the impressions. They are said to be always distinct, clear and accurate, regardless of the type of material. The impressions may be indelible or washable as desired. When necessary the legend can be fired into glass or ceramics and thus become indestructible.



Carbide Saw Grinder

A new economical carbide saw grinder has just been announced by Huther Bros. Saw Mfg. Co., Inc., Dept. W, 1290 University Ave., Rochester 7, N. Y. It grinds tops level, tops straight and with slight adjustment will grind the face of the saw.

The rim speed of the wheel is ideally designed for grinding tungsten carbide. Cone mounting design to accomodate any center diameter hole. The feed mechanism is graduated in thousanths and can be easily adjusted by an inexperienced operator. Top level adjustment is graduated by degrees and can be set positively. Huther grinder is easy to operate because of simplicity of design so that any saw filer can readily master the operation of this machine. It uses a small economical wheel. Has automatic feed mechanism for cutting oil. Will sharpen from 4" to 24" saws.

Spray Gun

A new spray gun with ultra sensitive controls for fine spraying has been introduced by the DeVilbiss Co. Dept. W, 459 Spitzer Bldg., Toledo 4, Ohio. It is designated as Type EGA, is designed for small refinishing jobs, stenciling, blending, high-lighting and decorative work. It's spray pattern is medium sized and can be adjusted to practically pin-point size for touch-up work. The gun body of the EGA is an aluminum die casting, which permits the use of a wide range of materials including latex. The new gun is light weight and can be used with standard glass jar fluid containers of 2, 4, 6 or 16 oz. capacity.

New Plywood Sheathing

A new Douglas fir plywood sheathing, trade-named Valley Ply, is now being introduced by the Valley Plywood Co., Box 789, Dept. W, Eugene, Ore.

The new Valley Ply sheathing is being produced in three popular thicknesses: 3/8-in., 1/2-in. and 5/8-in. Panel sizes 4 ft. x 8 ft. and 2 ft. x 8 ft. are immediately available. Other dimensions can be provided on special order.

A Wood Trading Post AD will find Men—Materials—Machinery

Penwood
PLYWOODS
Hardwood Plywoods for Quality Goods

THE ARISTOCRATS IN

BIRCH—MAPLE—RED OAK—
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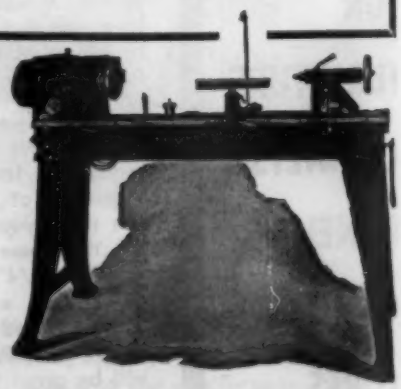
"OLIVER"
No. 159-A Motor Driven
SPEED LATHE



Produces smooth, accurate turnings at less cost

On work within its capacity, this "Oliver" Speed Lathe turns wood quickly and smoothly. It swings 12" diameter, 24" between centers. Bed is 48" long. Unit type motor and V-belt driven headstock give spindle speed from 800 to 2750 rpm. Switch has overload protection. Spindle lock simplifies removal of face plates. Write for Bulletin No. 159-A.

"Oliver" makes a complete line of Woodturning Lathes

OLIVER MACHINERY COMPANY
Established 1890
GRAND RAPIDS 2, MICH.

New Trade Literature

Plywoods and Doors Catalog

Sixteen thousand five hundred architects will shortly receive two four-color catalogs, totaling 60 pages, and telling virtually all there is to know about Malarkey plywoods and doors. Surveys have shown 78 percent of America's architects designate materials they use by product name, it is claimed. It is the first complete index of M and M Wood Working Company's products to be published with brilliant color photographs. It is also available to distributors and others at $1.00 a copy for those who write to 2310 N. Columbia Blvd., Portland, Oregon.

Finishing Western Pine Paneling

A new customer service booklet, "Installing and Coloring Your Walls of Western Pines and Associated Woods," has been published by the Western Pine Association, Dept. W, Yeon Bldg., Portland 4, Ore.

A revision of a previous folder devoted exclusively to the Western Pines, the new booklet also incorporates instructions for finishing any of the Associated Woods—Douglas Fir, White Fir, Larch, Engelmann Spruce, Incense Cedar, Inland Red Cedar and Lodgepole Pine.

The 16-page publication provides exact instructions for installing paneling in new construction or over plaster or masonry walls in remodeling. It lists a variety of finishes that may be prepared at home, together with instructions for mixing, and contains a long list of prepared finishes, most of which are obtainable at retail lumber yards.

Hot Plate Presses

A new bulletin, No. 101, on the subject of Hot Plate Presses has just been announced by the Columbia Machinery and Engineering Corp., Dept. W. Hamilton, Ohio. Crowns and bases of all Columbia Hydraulic Hot Plate Presses are fabricated of heavy rolled steel plate by welding and are scientifically reinforced to gain maximum strength and rigidity and minimize degection.

Special construction of the pressure platens makes it possible to meet pressure requirements by the use of fewer large-area rams.

Production Problem Solutions

Now available to industry is a new booklet "Air Power at Work", just published by Mead Specialties Co., Dept. W, 4114 W. Knox, Chicago, Ill.

In this special "green" booklet have been gathered the case histories of thirty-nine different production problems with their solutions by means of semi-automatic or automatic combinations of various Mead air-operated devices for the job to be done. Each different combination of workfeeders, air presses, timers, valves, etc., is clearly pictured by photographs with a written description of the specific operational method.

Brochure on Resin Adhesives

A new technical data brochure covering American Cyanamid Company's resin adhesives is now available on request. It includes complete technical information and instructions for use of the following adhesives: Melurac Resin 300 for Hot Press Bonding; Urac Resin 185—with Hardener 185; Urac Resins 100 & 110—for Hot Pressing with Cereal Flour Extenders; Urac Resins 100 & 110—for Cold Pressing with Cereal Flour Extenders; Urac Resin 180—for Hot Pressing with

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Cut to Size
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Superior Quality, Ample Capacity
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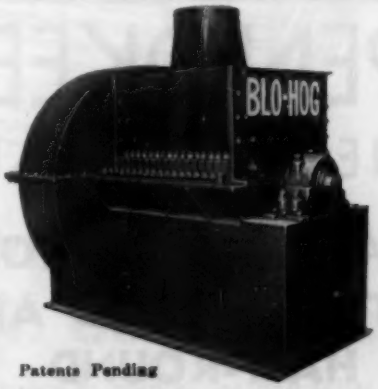

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Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

Write for bulletin and details.

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Hardeners; Urac Resin 180—for Cold Pressing with Hardeners.

Requests may be made to Plastics & Resins Division, American Cyanamid Co., Dept. W, 30 Rockefeller Plaza, New York 20, N. Y.

Fine Wood Finishes

An illustrated booklet giving step-by-step instructions for creating fine wood finishes is available from Monsanto Chemical Company's Western Division, Dept. W, 911 Western Ave., Seattle 4, Wash.

The detailed, easy-to-read instructions, based on the experience of outstanding wood craftsmen, include "recipes" for bringing out the characteristic beauty of a variety of woods and achieving a range of color effects. In addition to suggested uses indoors and out, the booklet contains helpful wood finishing hints for home craftsmen.

Shortcuts for Cruisers

A new method of cruising timber without measuring or estimating tree diameters or plot radius is explained by L. R. Grosenbaugh in Shortcuts for Cruisers and Scalers, a recent publication of the Southern Forest Experiment Station, U. S. Forest Service., Dept. W, 704 Lowich Bldg., New Orleans 13, La.

In using the new technique, the cruiser simply stands at the center of the plot, looks through a simple hand-held angle gauge, and counts all trees whose diameters appear larger than the angle laid out by the gauge.

From the number of trees that he counts, the cruiser can quickly calculate the basal area of the stand around the sampling point. If he desires additional information about the timber, he merely tallies counted trees by species, log length, and grade, or any other desired classification. The method shortens office calculations as well as woods time.

Engineering Data

A revised edition is available of Booklet #2008-H titled "Cleveland Tramrail Engineering and Application Data" issued by the Cleveland Tramrail Division of The Cleveland Crane & Engineering Co., Dept. W, Wickliffe, Ohio.

This Booklet is designed to give a good conception of what tramrail overhead materials handling equipment consists of and how it can be applied to bring about one or more of fifteen definite advantages, one of which is the drastic lowering of manufacturing costs.

Of special interest is the new material on Pages 4, 5 and 6 covering track design, track stresses and the solution to track peening.

How To Sharpen Carbide Saws

A new instruction booklet for those shops who wish to sharpen their own carbide tipped saws and have a sturdy tool and cutter grinder plus the services of a skilled operator, is now available.

This illustrated pocket-size booklet shows the following in detail: Correct step by step procedure for sharpening and maintaining Carbide Tipped Woodcutting Saws; The exact specifications of the recommended diamond grinding wheels for sharpening the Carbide Tips; Illustrations of the tooth styles for Carbide Tipped Rip, Cut-off, Combination, "Easy-Cut", Groover and Dado with recommended tooth clearances for each type; Complete instructions with illustrations on the proper assembly of a Carbide Tipped Dado Head.

For instruction booklet, address Simonds Saw and Steel Co., Dept. W, 470 Main Street, Fitchburg, Mass.

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VENEER COMPANY
MANUFACTURERS OF
ROTARY, SLICED AND HALF-ROUND
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---To Protect *Your* Hardwood Sales and Purchases With N. H. L. A. Certificates

A Long-Time Member Writes:—

"We have no fear of shipping lumber any place in the country for we know that if we get into trouble or our grades are a little off, we have a fine organization to protect us from unfair claims. If we were not members, we would not have this feeling."

NHLA Certificates are an assurance to both buyer and seller that the shipment has been accurately graded and measured by an impartial and competent Inspector according to accepted National grading rules. Back of the Certificate stands the resources of the Association and the combined interest, experience and good will of over 1700 hardwood producers, wholesalers and consumers.

Good will and satisfied customer relationships grow where mutual confidence is provided. You should JOIN the National Hardwood Lumber Association to take advantage of this unequalled service. Your inquiry will bring full details.

NATIONAL HARDWOOD LUMBER ASSOCIATION

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Plywood

(Continued from page 40)

satisfactorily to the veneers. Plyron was a single product that combined two well established products, and broadened the market for both. The smooth dense surface was provided by the hardboard, while the plywood and veneer layers contributed strength, nail holding power, resilience, and relatively light weight. The use of these hardboard surfaces offsets, economically and practically, the diminishing supply of high grade "peeler" logs, and the making of the hardboard provides an efficient utilization of scrap wood that might otherwise be of very little value.

While this plyron story has been told in more detail than that of its two counterparts, this is because the story is both new and typical. It does not indicate that, as yet, plyron has been demonstrated as either equal or superior to its antecedents. It is an example of competitive factors among products which have been developed to overcome natural limitations. Only time will tell whether one or two or three of these alternates will be found to be in a cost range that will meet manufacturing requirements and customer acceptance.

Conclusions

All woodworking industries have problems of product development, many of which may not be recognized as such. Without product development no industry can hope to progress.

The history of the Douglas fir plywood industry, nearly fifty years, is a relatively short story, from a flat start in 1905, through many steps of product development to a major outstanding industry in 1952, with abundant promise for future growth. It has been characterized by close co-operation between units in the industry, and by a virile and aggressive trade association. Nature has provided an abundant supply of excellent raw material, and man has skillfully converted this raw material into a wealth of products that were undreamed of only fifty years ago.

It is a story that other branches of the woodworking industry should ponder, and its lesson should inspire others to do likewise.

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Utilization

(continued from page 30)

various kinds of panels developed on the sandwich construction principle is still in a highly experimental stage, but it could well bring about another revolution in housing. And it will give a field of usefulness for fiber products.

The possibilities in wood sugar should be noted. If our country were not blessed with such a wealth of agricultural resources, the wood-sugar industry would have long since become of major inmportance. Suffice it to say that we are continuing our exploration of the possibilities in this field. Technically we are in good shape. The economics of the processes involved are still unknown.

Wood becomes more valuable as our great industrial plant expands and our population increases. Wood helped tremendously in the building of this country, and in the implementation of our industrial plant, and it has now assumed major importance as an industrial raw material. No other country in the world is so well equipped to use wood well as is the United States; no other country could benefit more from forest products. Wise utilization coupled with wise land use and good forest management can give amazing wealth to our people from our forests.

Foreign Woods

(continued from page 16)

LAK species is olive brown to reddish brown, somewhat streaked. The sapwood is yellowish. It is extremely hard, compact, tough, strong and heavy, Specific gravity, air dry 1.10 to 1.25. The wood has a fine uniform texture, is difficult to work but splits easily. It finishes smoothly and is very durable. MANBARKLAK has well outlasted greenheart for marine piling when the two woods were used under identical conditions. This wood merits further study of its commercial possibilities.

Other names:

Olleto	Panama
Montanero, Guatequero	Venezuela
Toledo wood and many other names	Surinam
Idatamon	French Guiana
Mata-mata	Brazil
Pinuela	Ecuador
Muchinmango	Peru

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It is now possible to use most of the leftovers in a sawmill, including the bark, in the manufacture of hardboard.

?

A survey by the United States Department of Agriculture revealed that New England has a higher proportion of all wood home construction than any other region, that the houses in New England average much older than in any other region, and that they are in better average condition.

?

West Coast hemlock was used for the floors of the 1939 San Francisco World's Fair Exposition buildings and withstood the wear of an estimated 20 million pairs of feet.

Adolph Hitler's "Thousand Year Reich" was to have been "the age of wood", and he called wood the material which can produce anything.

?

Loggers and woodsmen of Machias, Maine won the first sea battle with the British Navy in May of 1775; captured two scows and a British schooner with a lumber-bulwarked scow, long before the establishment of the United States Navy was ever proposed.

?

In 1941 Norwegian and Finnish pulp mills produced almost half-a-million tons of animal fodder for the Nazis. Sweden produced 500,000 tons of cattle food from wood in 1942.

?

David Douglas, for whom the Douglas fir was named, is said to have introduced more new species into Europe than any other individual.

?

The United States uses 1,571,000 board feet of wood a year to make toothpicks. This is enough to build 157 houses.

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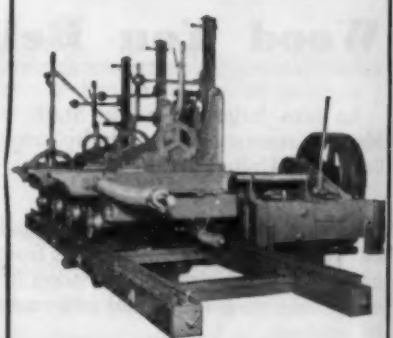

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